

# **CASTING BASIN GATE MAINTENTANCE RECORDS**

CYCLE 6



Michael Schmidt

3/10/15

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# Kiewit-General Inspection Report



## GATE INSPECTION CHECKLIST - CYCLE 5 FLOAT OUT

Per spec 2.13.6.4 and PCF O&M 1.1.3 G (h)

**PROJECT:** SR 520 PONTOONS

**DATE:** 3/12/2015

**KG QC:** Michael Schmidt & Josh Norquist

**WSDOT:** Dane Marbut

**KPFF:** Trevor Lightly

**HNTB:** Not Present

**QA:** Doug Brinius - O'Neill

**WELD INSPECTOR:** Juan Martinez - Krazan, Arthur T. Perkinson - Pacific Testing & Inspection

**PAINTING SERVICES:** Long Painting - Dave Barrett

ITEM #	DESCRIPTION	NOTES
i	Gate Coating System	<ul style="list-style-type: none"><li>- Few new random corrosion spots on the barrier wall face and at stiffener welds the size of a dime on average.</li><li>- Random spots smaller than a quarter on average on dry side of gate corroding. Mostly bottom of T1.</li><li>- Seal stops in proximity to the stainless steel seal clamps and jamb bearing plates have minimal corrosion.</li><li>- Truss members on dry side are scratched and chipped from the abrasion of the gate rigging.</li><li>- Surface rust, algae and sediment evident on dry side where intermediate seals leak.</li><li>- KG cleaned prepped areas to paint. Long Painting sandblasted, primed and painted.</li><li>- Some areas sandblasted would expose loose original paint.</li></ul>
ii	Gate Truss Members & Connections	<ul style="list-style-type: none"><li>- Members and connections have no evident issues.</li></ul>
iii	Gate Barrier Wall	<ul style="list-style-type: none"><li>- Reference KG inspection report pictures for locations.</li></ul>
iv	UHMW Bearings	<ul style="list-style-type: none"><li>- UHMW bearing pads are not cracked but were manufactured less thick by approximately 3/4". 1/4" of gap remains.</li><li>- No other damage to connections or excessive wear. Normal wear evident.</li></ul>
v	Natural Rubber Seals	<ul style="list-style-type: none"><li>- No damage to connections, cracks, excessive leakage, deformation or degradation observed.</li><li>- Butyl rubber replaced on perimeter seal.</li><li>- Sponge neoprene at intermediate to perimeter seal junction replaced.</li></ul>
vi	Screw Jack Assembly	<ul style="list-style-type: none"><li>- No corrosion evident on pipes, threaded rods, nuts or washers.</li></ul>
vii	Belleville Spring Assembly	<ul style="list-style-type: none"><li>- No corrosion evident on threaded rod, nuts or washers. Spring discs are not cracked or corroding. Minor light surface rust.</li><li>- Top springs at 2T and 8.8T removed and passed inspected. No issues.</li></ul>
viii	Shear Transfer Fittings & Threaded Rods	<ul style="list-style-type: none"><li>- No severe corrosion evident on threaded rods, nuts or washers. Shear fittings do not show gap.</li></ul>
ix	Additional Notes	



1) T2 before cleaning. Few to no barnacles found.



2) Aluminum anodes showing expected wear. Reference attached Norton inspection memo.



3) Aluminum anodes showing expected wear. Reference attached Norton inspection memo.



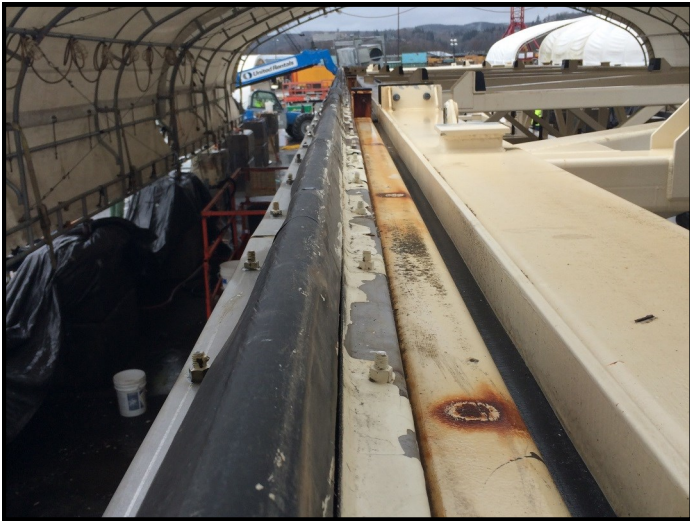
4) T3 before cleaning. Minimal marine growth or algae.



5) T1 zinc anodes nearing end of use.



6) T2 zinc anode 60% remaining.



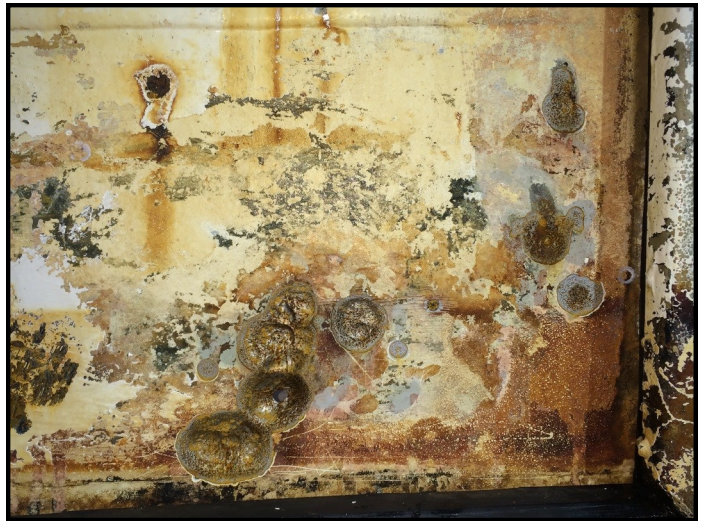
7) Duraplate235 on stainless clips did not adhere. To be removed, blasted, primed, and epoxied.



8) Backside of T3 cleaned.



9) Large original Duraplate235 coating failure area down to primer from pressure washing.



10) T1 excessive corrosion at bottom to vertical intersection at 1T.



11) Rust spots on top of T2 and Duraplate failure to primer.



12) Screw jack plate washers rusting. To be removed and repainted.



13) T2 after pressure washing.



14) T1 bearing pad showing minimal wear. 1/4" of space to bolt heads



15) Coating failure on barrier wall wailer.



16) Previous repair never painted after prep.



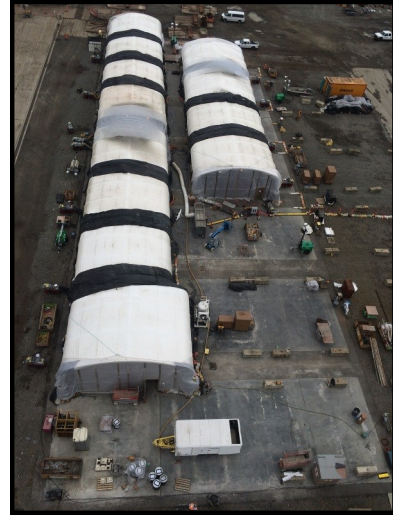
17) Trusses contained on SW precast beds in precast tent.



18) T1 butyl rubber held well. SS coating failure in addition to improper prep on previous repairs now failing.



19) Trusses in temperature and humidity controlled environment in precast tents on SW precast.



20) Overview of gate repair area.



21) 5,000 CFM electric desiccant dehumidifier used for the long tent (T2 and T3).



22) 2,000 CFM desiccant dehumidifier used for the small tent (T1).



23) Doug with QA testing for surface contaminants prior to sandblasting.



24) During sandblasting of T1.



25) Backside of T1 at 1T after initial sandblasting prior to weld repairs.



26) T1 1T after initial sandblast prior to weld repairs.



27) T3 after sandblasting during hand tooling repair.



28) T1 during sandblasting.



29) Bottom of T1 after initial sandblasting prior to weld repairs.



30) T2 after sandblast.



31) HCS intake plates primed and bent pick point tab replaced.



32) T1 at 1T sandblasted prior to weld repairs.



33) Doug with QA inspecting WFT.



34) Doug with QA inspecting roughness on prepped area.



35) Power mixing of primer.



36) Perimeter seal stainless clips primed.



37) Mixing station for Duraplate 235.



38) First coat of epoxy on T2.



39) Long Painting foreman Dave and WSDOT inspector Dane inspecting for missed sandblasting spots on T1.



40) T1 perimeter seal stainless clips ready for sandblast.



41) Backside after hand tool prep and initial sandblast.



42) Grinders used with flap disc for hand tool prep.



43) Prime area of T2.



44) T1 primer.



45) Top half of T1 primed, bottom half sandblasted.



46) Sweat in and power mixing of Duraplate 235.



47) T3 with Duraplate 235.



48) Front side T3 Duraplate 235.



49) Front T1 Duraplate235.



50) Back of T1 Duraplate235.



51) Seal replaced after 4 days min of cure.



52) new butyl rubber 1/8" installed.



53) A stud sheared on GL1 T1 vertical seal during seal install.



54) A stud below the sheared one had a hairline crack.



55) Both studs were removed and replaced with a new 316L SS stud.



56) Close up of top SS stud.



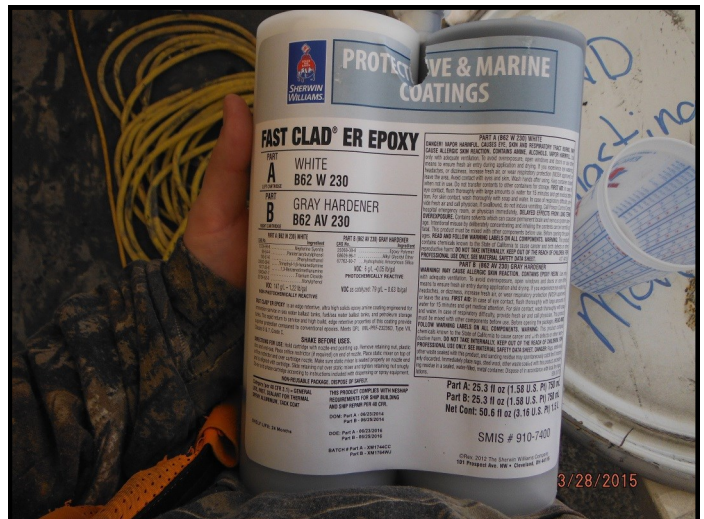
57) Bottom close up of SS stud.



58) Fast Clad ER used for touch up due it the rapid cure.



59) Spots where weld metal hit were also touched up.



60) Cure to service in 12hrs at 100deg.



61) Stud repair area after paint.



62) Intermediate seals with new 3/4" foam to aid in seal.



63) Intermediate seals with new 3/4" foam to aid in seal.



64) Tents removed after cure to service period of 5 days.



65) Top spring pack at 8.8T and top at 2T inspected to be okay. Light surface rust.



66) Overview of gate after tents removed.



67) T1 stud shear area with 100deg environment to cure the Fast Clad ER in 12 hrs.



68) T1 final product.



69) Stud repaired area with seal re-installed.



70) Gate moved back to dunnage on dirt.



71) Gate reset on Monday March 30th, 2015 at 4pm.



72) Dewatering basin started at 6pm.

	T1 North	T1 South
Logger SN	8317848	8321401
3/23/2015 13:00	109.4	105.8
3/23/2015 14:00	96.8	96.8
3/23/2015 15:00	91.4	87.8
3/23/2015 16:00	96.8	89.6
3/23/2015 17:00	104	95
3/23/2015 18:00	104	96.8
3/23/2015 19:00	107.6	100.4
3/23/2015 20:00	105.8	96.8
3/23/2015 21:00	107.6	96.8
3/23/2015 22:00	105.8	96.8
3/23/2015 23:00	104	96.8
3/24/2015 0:00	104	96.8
3/24/2015 1:00	105.8	96.8
3/24/2015 2:00	105.8	98.6
3/24/2015 3:00	105.8	98.6
3/24/2015 4:00	107.6	98.6
3/24/2015 5:00	109.4	98.6
3/24/2015 6:00	109.4	100.4
3/24/2015 7:00	109.4	98.6
3/24/2015 8:00	104	96.8
3/24/2015 9:00	109.4	109.4
3/24/2015 10:00	113	118.4
3/24/2015 11:00	113	111.2
3/24/2015 12:00	104	104
3/24/2015 13:00	104	105.8
3/24/2015 14:00	102.2	104
3/24/2015 15:00	104	104
3/24/2015 16:00	104	100.4
3/24/2015 17:00	105.8	100.4
3/24/2015 18:00	105.8	100.4
3/24/2015 19:00	111.2	104
3/24/2015 20:00	113	104
3/24/2015 21:00	114.8	105.8
3/24/2015 22:00	114.8	104
3/24/2015 23:00	113	102.2
3/25/2015 0:00	111.2	100.4
3/25/2015 1:00	111.2	98.6
3/25/2015 2:00	111.2	100.4
3/25/2015 3:00	113	100.4
3/25/2015 4:00	114.8	102.2
3/25/2015 5:00	114.8	102.2
3/25/2015 6:00	116.6	104
3/25/2015 7:00	116.6	105.8
3/25/2015 8:00	107.6	100.4
3/25/2015 9:00	100.4	95
3/25/2015 10:00	104	95
3/25/2015 11:00	102.2	91.4
3/25/2015 12:00	102.2	91.4
3/25/2015 13:00	104	93.2
3/25/2015 14:00	96.8	95
3/25/2015 15:00	104	93.2
3/25/2015 16:00	104	93.2
3/25/2015 17:00	96.8	89.6
3/25/2015 18:00	98.6	89.6
3/25/2015 19:00	104	93.2
3/25/2015 20:00	109.4	98.6
3/25/2015 21:00	114.8	104
3/25/2015 22:00	118.4	105.8
3/25/2015 23:00	118.4	107.6
3/26/2015 0:00	120.2	109.4
3/26/2015 1:00	122	109.4
3/26/2015 2:00	120.2	109.4
3/26/2015 3:00	120.2	109.4
3/26/2015 4:00	120.2	107.6
3/26/2015 5:00	120.2	109.4
3/26/2015 6:00	118.4	107.6
3/26/2015 7:00	118.4	107.6
3/26/2015 8:00	118.4	107.6
3/26/2015 9:00	120.2	109.4
3/26/2015 10:00	122	114.8
3/26/2015 11:00	114.8	114.8
3/26/2015 12:00	116.6	123.8
3/26/2015 13:00	120.2	122

T2/3 North	T2/3 South	T2/3 Mid
8321400	8317870	8317865
104	96.8	104
95	95	102.2
91.4	95	102.2
93.2	93.2	96.8
95	95	96.8
102.2	96.8	98.6
107.6	98.6	102.2
104	93.2	98.6
104	93.2	98.6
104	93.2	98.6
104	95	98.6
104	95	98.6
105.8	95	98.6
104	95	98.6
104	95	98.6
104	95	98.6
105.8	95	100.4
104	95	98.6
93.2	89.6	89.6
104	96.8	98.6
105.8	98.6	102.2
104	96.8	100.4
98.6	98.6	100.4
98.6	98.6	100.4
98.6	102.2	104
98.6	100.4	104
98.6	100.4	100.4
102.2	98.6	100.4
102.2	95	96.8
105.8	96.8	96.8
113	98.6	102.2
105.8	96.8	100.4
104	95	98.6
102.2	91.4	96.8
100.4	87.8	95
98.6	86	93.2
98.6	86	93.2
100.4	86	93.2
98.6	89.6	93.2
98.6	86	93.2
98.6	89.6	95
100.4	89.6	95
84.2	87.8	91.4
89.6	87.8	84.2
89.6	89.6	93.2
89.6	89.6	89.6
89.6	89.6	89.6
91.4	91.4	91.4
89.6	86	86
84.2	75.2	78.8
89.6	87.8	95
86	87.8	93.2
87.8	89.6	93.2
89.6	91.4	96.8
95	95	102.2
100.4	98.6	105.8
102.2	100.4	107.6
104	102.2	109.4
104	104	111.2
96.8	89.6	91.4
100.4	84.2	86
98.6	80.6	82.4
95	77	78.8
95	77	78.8
93.2	75.2	75.2
91.4	73.4	75.2
89.6	77	78.8
98.6	91.4	98.6
102.2	98.6	107.6
104	100.4	111.2
109.4	111.2	118.4
111.2	113	122

3/26/2015 14:00	118.4	123.8
3/26/2015 15:00	114.8	118.4
3/26/2015 16:00	111.2	113
3/26/2015 17:00	107.6	109.4
3/26/2015 18:00	105.8	104
3/26/2015 19:00	104	102.2
3/26/2015 20:00	105.8	102.2
3/26/2015 21:00	109.4	104
3/26/2015 22:00	107.6	104
3/26/2015 23:00	111.2	104
3/27/2015 0:00	109.4	104
3/27/2015 1:00	109.4	104
3/27/2015 2:00	109.4	104
3/27/2015 3:00	109.4	104
3/27/2015 4:00	109.4	102.2
3/27/2015 5:00	107.6	102.2
3/27/2015 6:00	109.4	102.2
3/27/2015 7:00	107.6	102.2
3/27/2015 8:00	100.4	96.8
3/27/2015 9:00	91.4	89.6
3/27/2015 10:00	87.8	87.8
3/27/2015 11:00	91.4	93.2
3/27/2015 12:00	93.2	93.2
3/27/2015 13:00	93.2	95
3/27/2015 14:00	86	87.8
3/27/2015 15:00	100.4	93.2
3/27/2015 16:00	100.4	96.8
3/27/2015 17:00	100.4	96.8
3/27/2015 18:00	102.2	98.6
3/27/2015 19:00	95	89.6
3/27/2015 20:00	87.8	84.2
3/27/2015 21:00	96.8	87.8
3/27/2015 22:00	93.2	86
3/27/2015 23:00	84.2	82.4
3/28/2015 0:00	80.6	84.2
3/28/2015 1:00	91.4	86
3/28/2015 2:00	86	82.4
3/28/2015 3:00	87.8	82.4
3/28/2015 4:00	86	84.2
3/28/2015 5:00	89.6	84.2
3/28/2015 6:00	93.2	86
3/28/2015 7:00	96.8	89.6
3/28/2015 8:00	107.6	96.8
3/28/2015 9:00	114.8	104
3/28/2015 10:00	116.6	105.8
3/28/2015 11:00	118.4	113
3/28/2015 12:00	105.8	107.6
3/28/2015 13:00	102.2	102.2
3/28/2015 14:00	98.6	102.2

114.8	111.2	129.2
123.8	114.8	129.2
120.2	113	123.8
120.2	113	120.2
118.4	107.6	114.8
116.6	104	111.2
116.6	104	109.4
122	104	113
123.8	104	113
123.8	104	113
123.8	104	114.8
127.4	104	114.8
125.6	104	114.8
125.6	104	114.8
125.6	104	114.8
123.8	102.2	113
123.8	102.2	113
123.8	102.2	113
123.8	100.4	113
120.2	104	116.6
120.2	107.6	118.4
113	104	113
116.6	107.6	118.4
116.6	104	116.6
107.6	100.4	113
109.4	102.2	113
109.4	105.8	113
111.2	105.8	113
111.2	105.8	111.2
104	104	107.6
93.2	98.6	95
100.4	100.4	105.8
100.4	100.4	105.8
91.4	95	96.8
89.6	95	95
95	96.8	100.4
89.6	95	96.8
91.4	95	96.8
91.4	96.8	96.8
91.4	93.2	96.8
95	96.8	100.4
96.8	100.4	102.2
100.4	100.4	104
104	102.2	107.6
105.8	105.8	109.4
105.8	109.4	113
104	107.6	109.4
104	107.6	111.2
78.8	73.4	78.8

Average	T1103.1	T2/3100.6
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Total Average	101.6 °F
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Required	100 °F
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Fast Clad ER

T1 @ GI1

Stud weld touch up epoxy

12hrs minimum at 100deg

Logged Readings (206):

Time(hrs)	Temperature (°F)	Maturity (°C-Hrs)
171	107.6	7120 3/28/2015 20:06
172	105.8	7161 3/28/2015 21:06
173	104	7202 3/28/2015 22:06
174	104	7243 3/28/2015 23:06
175	104	7283 3/29/2015 0:06
176	104	7323 3/29/2015 1:06
177	104	7364 3/29/2015 2:06
178	104	7404 3/29/2015 3:06
179	104	7444 3/29/2015 4:06
180	104	7484 3/29/2015 5:06
181	104	7525 3/29/2015 6:06
182	104	7565 3/29/2015 7:06
183	104	7605 3/29/2015 8:06
184	104	7646 3/29/2015 9:06
185	104	7686 3/29/2015 10:06

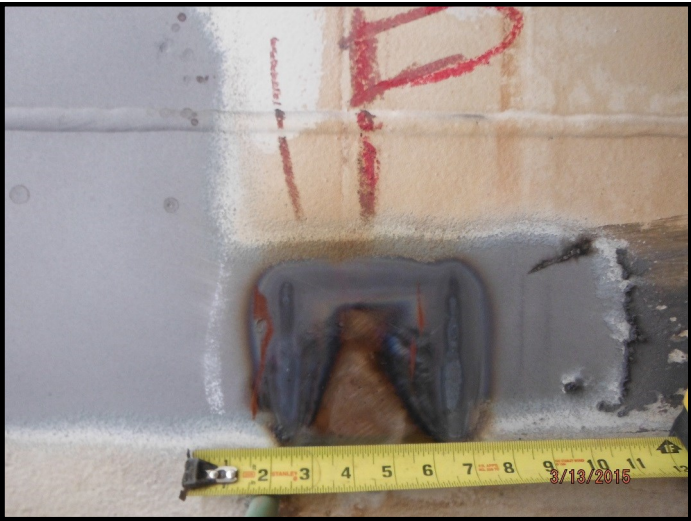
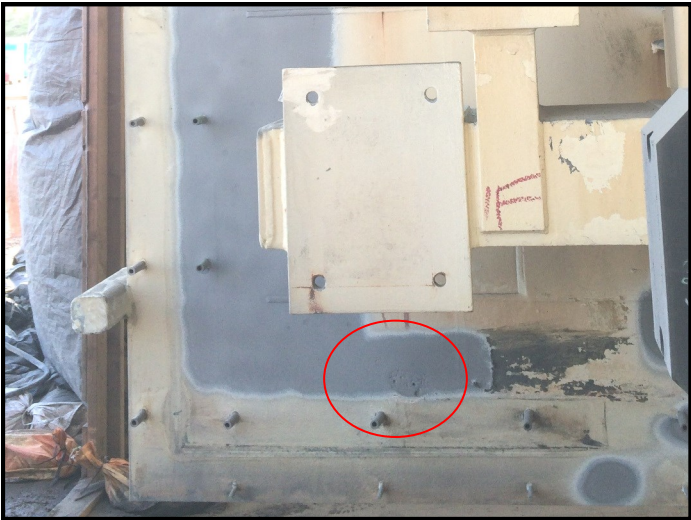
# WELD REPAIRS

#1-18 on T1

#19 on T2

1 P

9T: 1/4" diameter x 1/8" pits existing repair

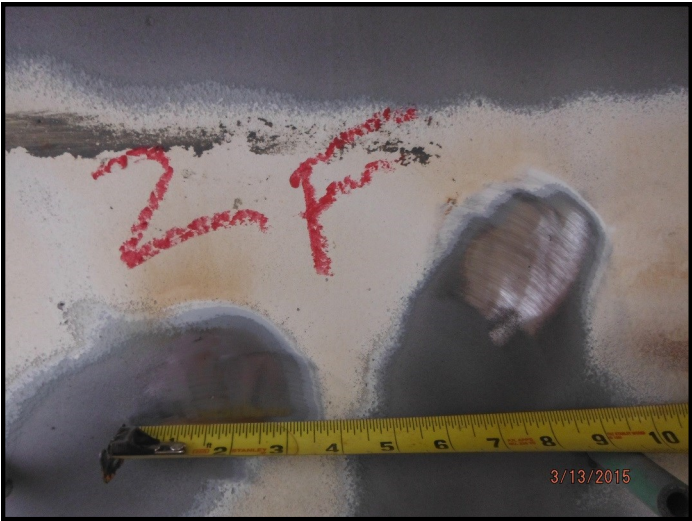


2 F

9T: 1/4" diameter x 1/8" pit

NO OVERVIEW  
PICTURE

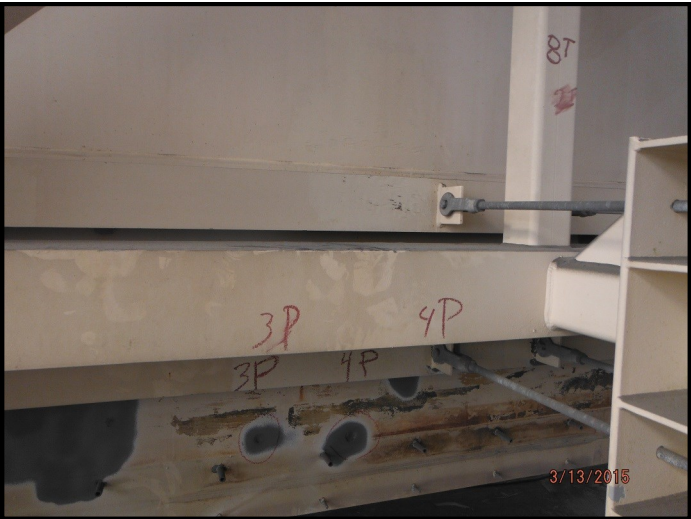
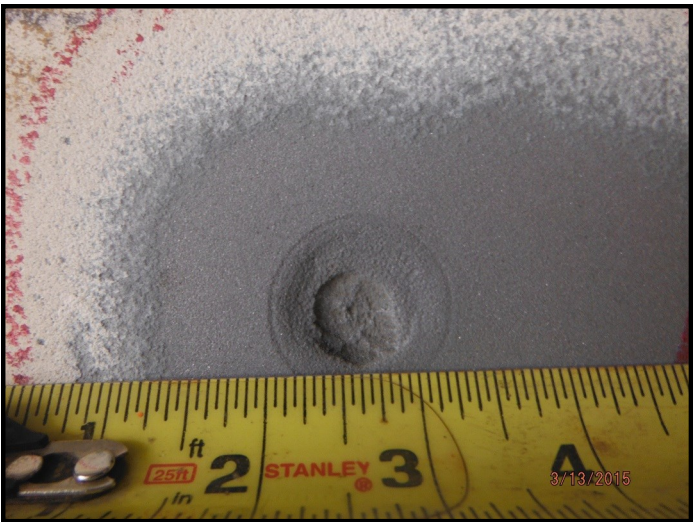
NO PRE-WELD  
CLOSEUP PICTURE



NO PLATE REQUIRED

3 P

25" after Grid 8T: - 1" diameter x 3/16" pit



4 P

14" after Grid 8T: 2" diameter X 1/4" pit



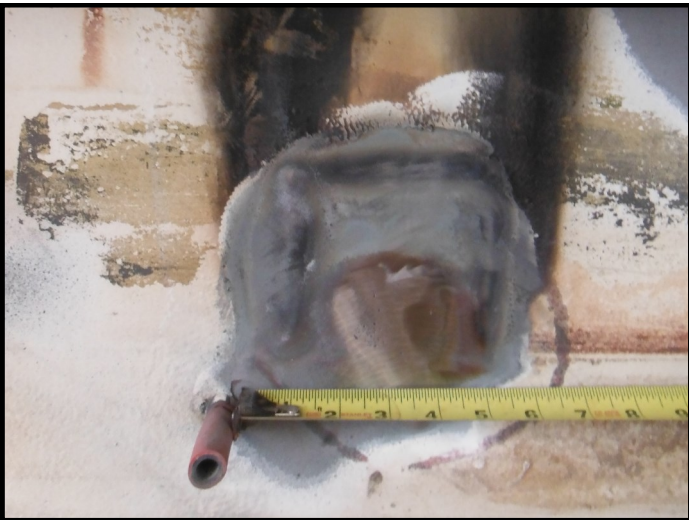
5 F

45" before Grid 8T: 1/2" diameter X 1/4" pit



6 F

57" after Grid 8T: 1/2" diameter X 1/4" pit

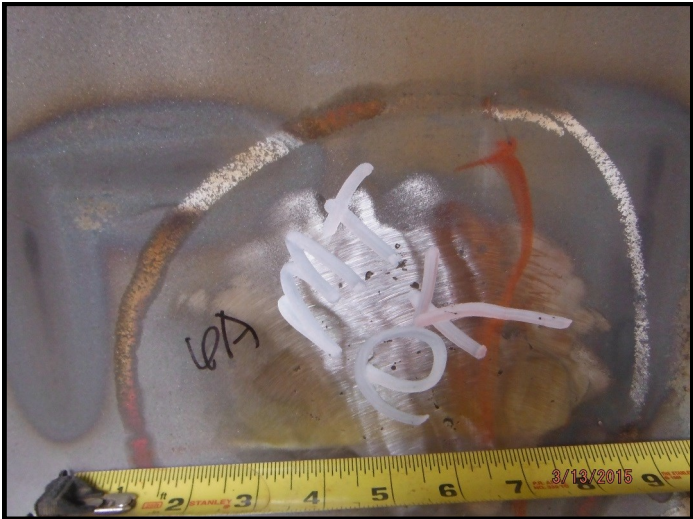


NO PLATE REQUIRED



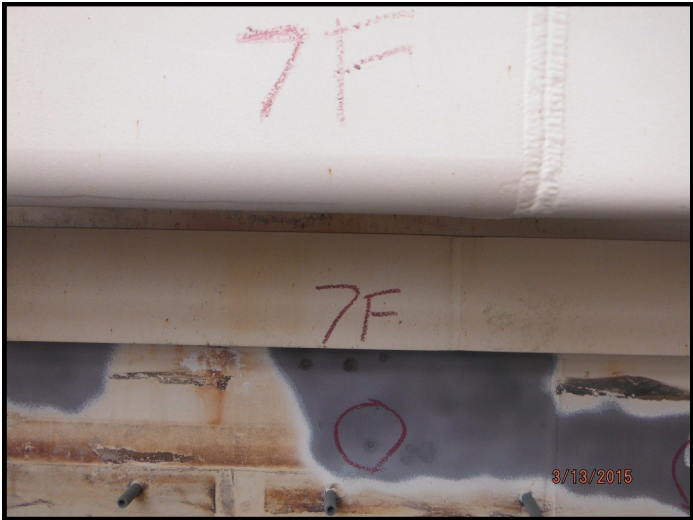
6A P

22" before Grid 7T: 7EA 1/4" diameter x 1/8" pits existing repair



7 F

105" before Grid 7T: 1/4" diameter X 1/8" pit



NO PLATE REQUIRED

8 F

127" before Grid 7T: 1/2" diameter X 1/8" pit



9A F  
28" after Grid 6T: 8EA 1/4" x 1/16" pits existing repair

P



9B F

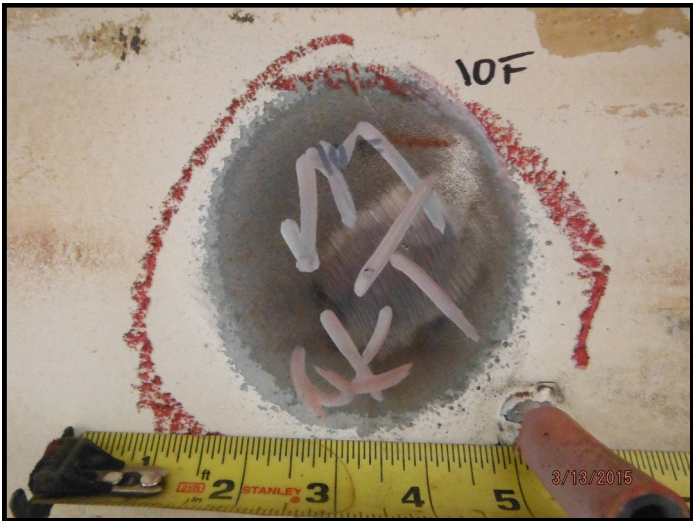
17" before Grid 6T: 1/2" diameter X 1/8" pit existing repair



NO PLATE REQUIRED

10 F

26" before Grid 6T: 1/4" diameter X 1/16" pit

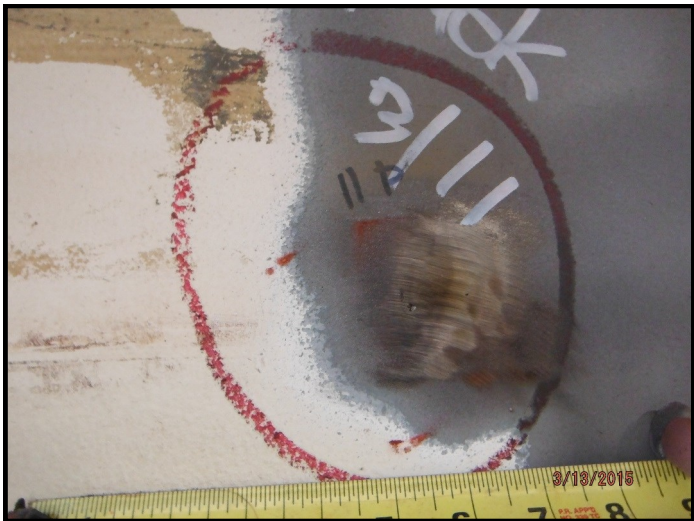
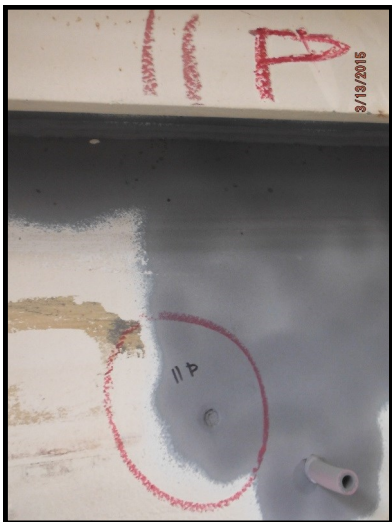


NO PLATE REQUIRED



11 P

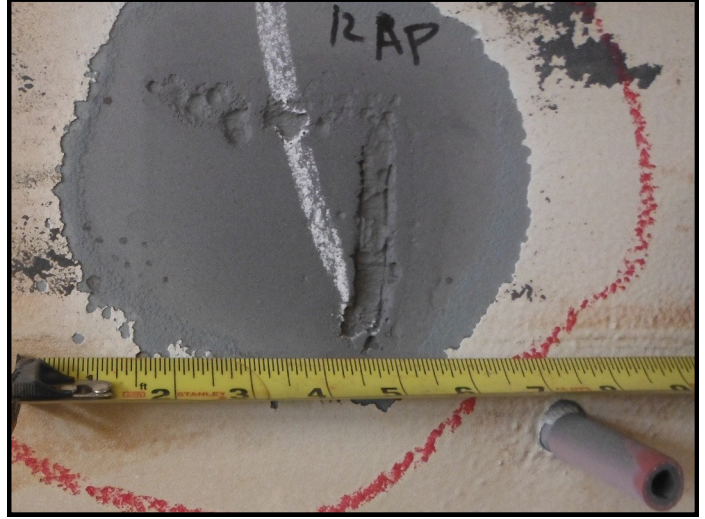
63" before Grid 6T: 1/2" diameter X 1/8" pit



Patch not used

# 12A P

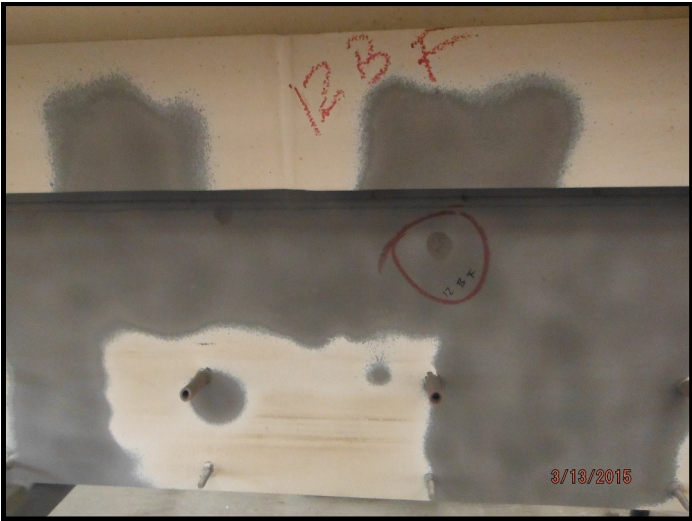
63" before Grid 6T: 1/2" diameter X 1/8" pit



Remove existing plate and add larger plate to extend 1" past repair

12B F

64" before Grid 4T: 1/2" diameter X 1/16" pit



NO PLATE REQUIRED

12C F

92" before Grid 4T: 1/2" diameter X 1/16" pit



NO PLATE REQUIRED

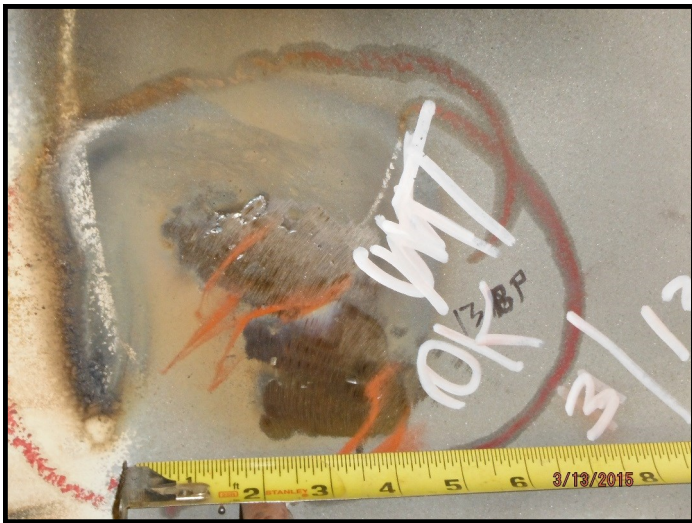
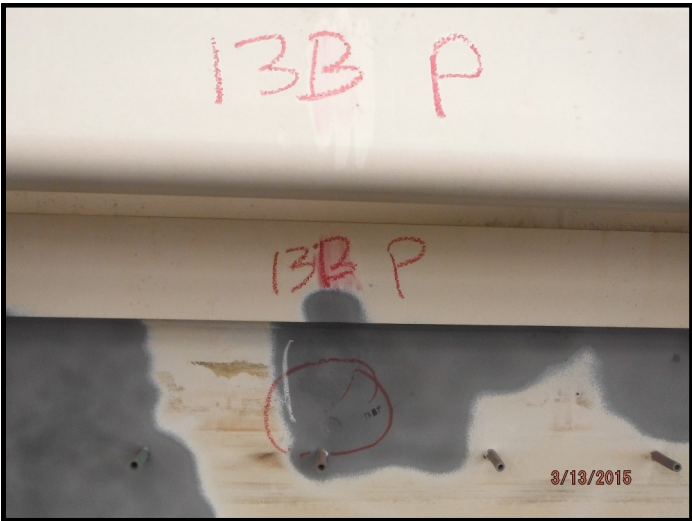
13A F

11" after Grid 4T: 1/8" diameter X 1/8" pit

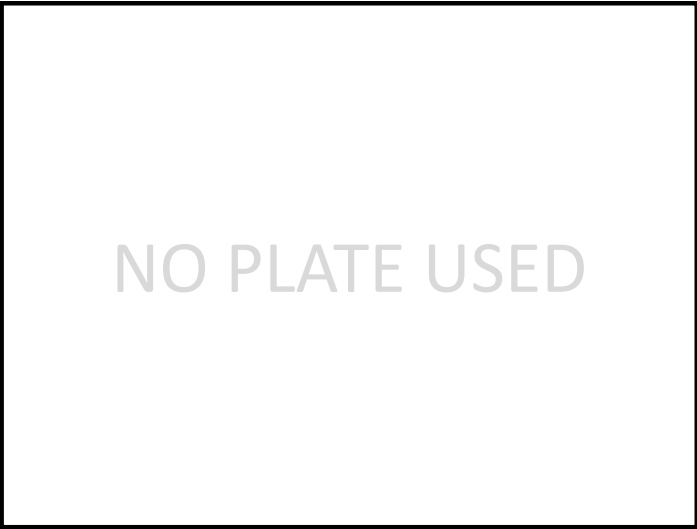
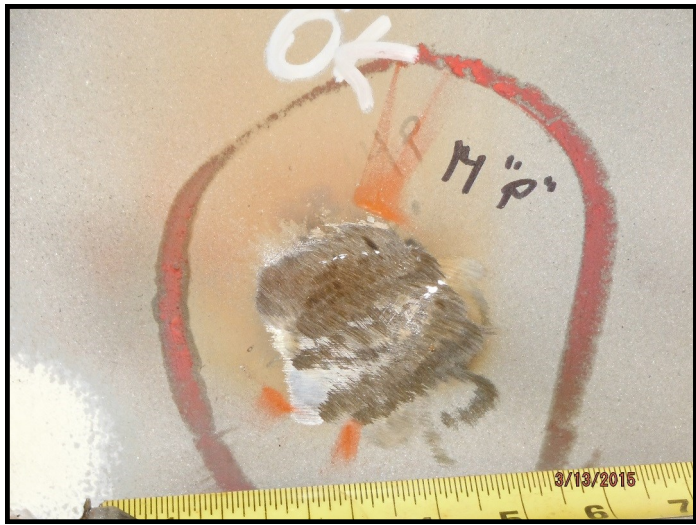
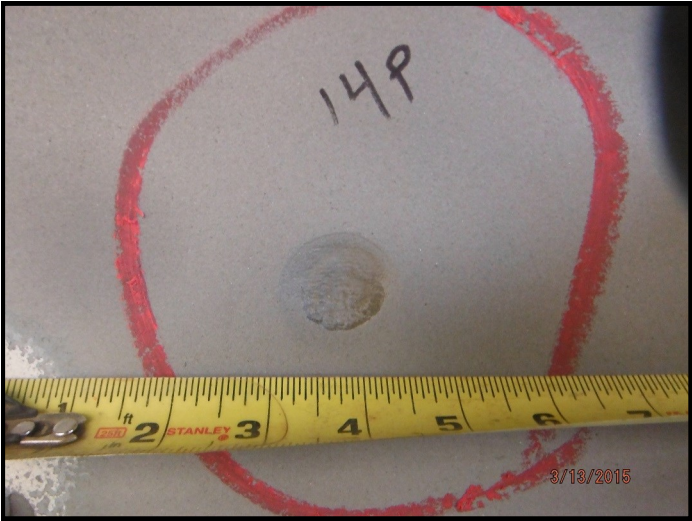
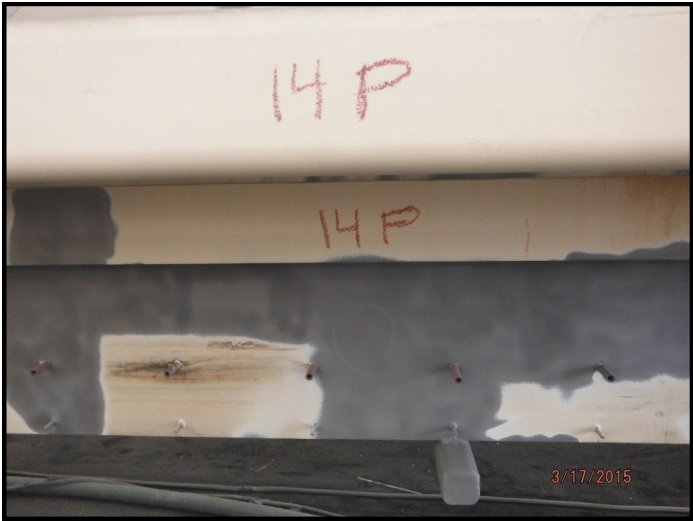


13B P

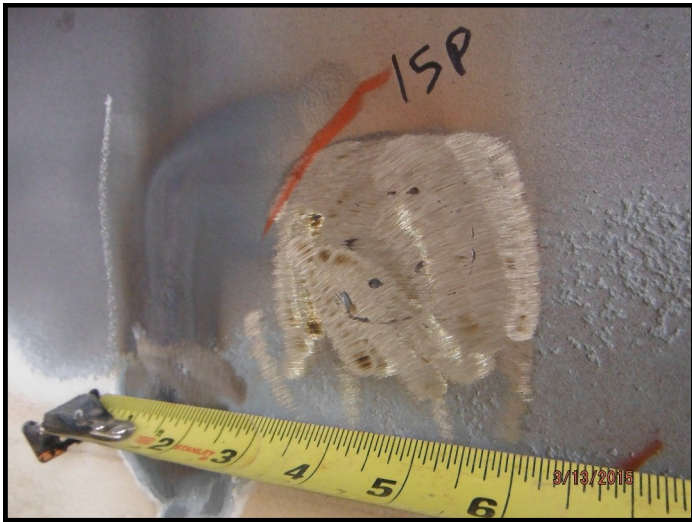
54" before Grid 3T: 1" diameter X 1/8" pit



14 P  
46" after Grid 2T: 1" diameter X 3/16" pit

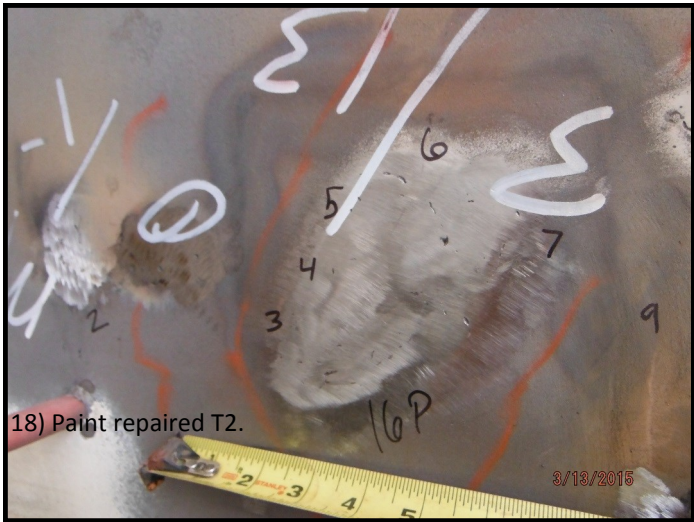


15 P  
Grid 1.2T: 1/2" diameter X 1/16" pit



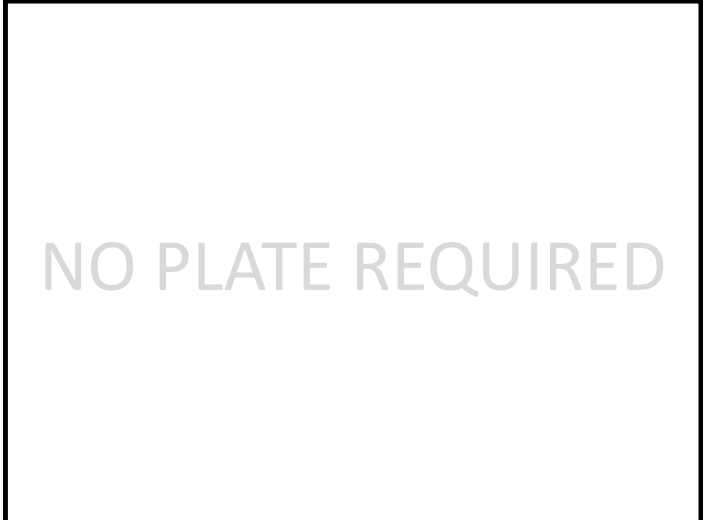
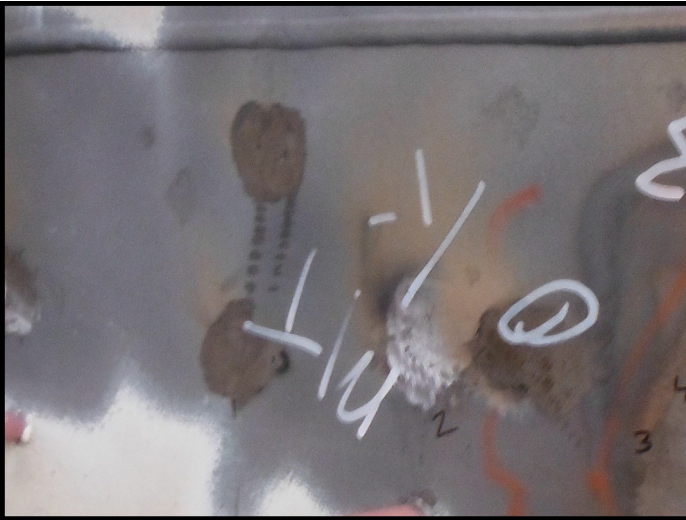
16 P

12" after Grid 1T: 1/4" hole, 4EA 3/4" diameter x 3/16" pits



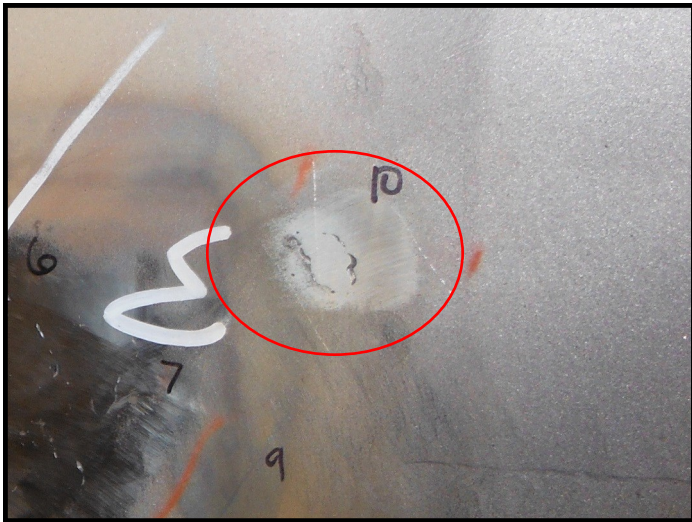
17 F

18" after Grid 1T: 2EA 1/8" diameter X 1/16" pits, 2EA existing repairs with 1/16" pits



18 F

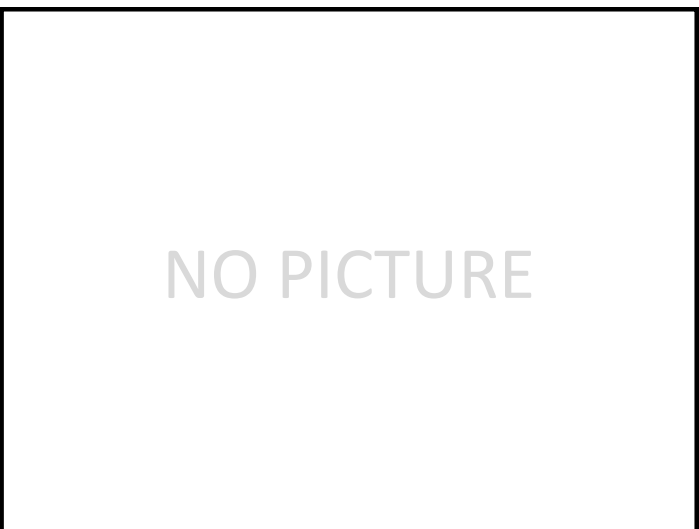
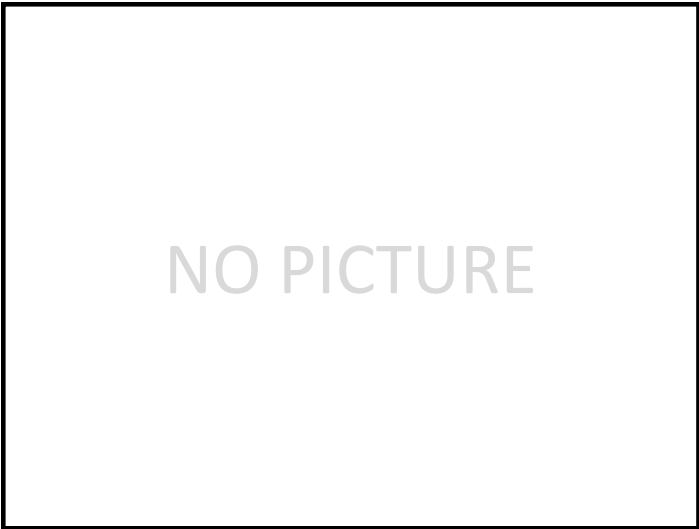
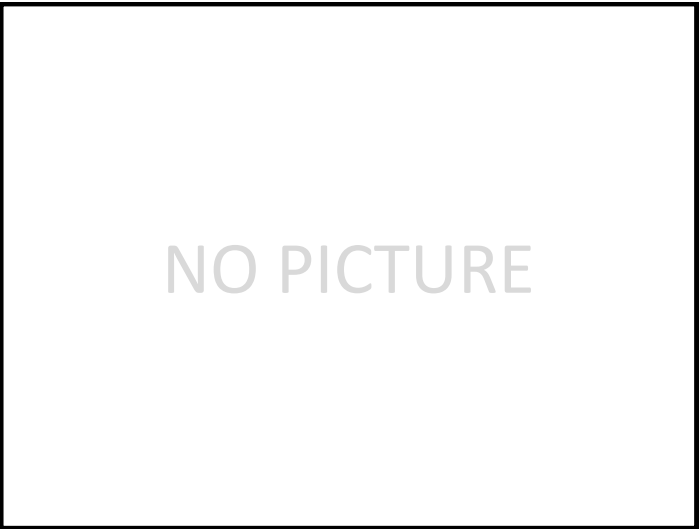
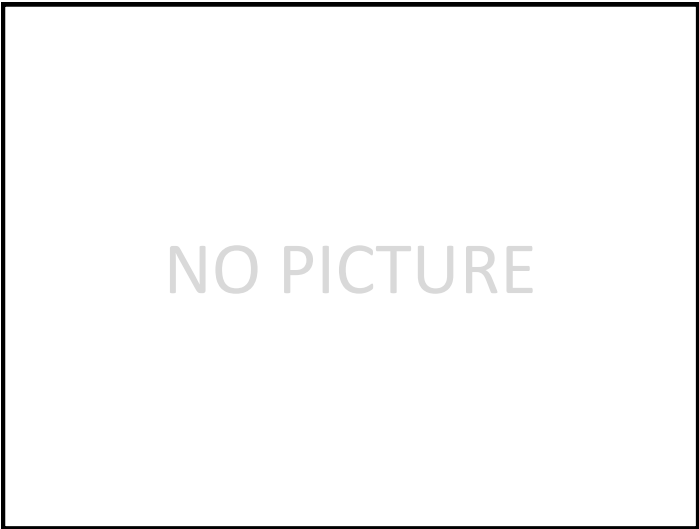
6" after Grid 1T: 1/4" diameter x 1/16" pit



NO PLATE REQUIRED

19 F

T2: 1T lower seal stop—Repair weld at cap plates.



# KPFF Field Report and Service Life Memo

## FIELD REPORT

To: Michael Schmidt (Kiewit-General)

cc: Andy Bennett  
Rick Johnson  
Don Oates

By: Trevor Lighty



Date: 10 March 2015  
Job #: 109055  
Project: Pontoon Construction Facility  
Location: Aberdeen, WA  
Contractor: Kiewit-General  
Weather: 55 Degrees, Sun  
Present at the Site: Trevor Lighty  
Andy Bennett

On March 10, 2015, KPFF visited the WSDOT SR 520 Pontoon Construction Project site in Aberdeen to inspect the casting basin gate at the request of Kiewit-General (KG). The objective was to determine the condition of the gate in general, and recommend any work needed to be done before the gate was returned to service. The gate was temporarily on-shore and readily accessible as the sixth pontoon cycle was being floated out.

### General Conditions

KPFF noted the following general conditions at the barrier walls and at the trusses and fixtures away from the barrier walls. Appendix A contains photographs of the typical gate condition.

### Barrier Walls

1. The water-side face had an accumulation of marine growth and silt. This was most severe on T1, and least severe on T3. KG was pressure washing the gate at the time of the gate inspection.
2. The water-side face showed little rusting and minor damaged paint in random spot locations, see **Photo 1**. The anodes installed during the Cycle 5 float out appear to be protecting the wall. KG was preparing and painting the damaged coating locations.
3. The basin-side face showed minor rusting and damaged paint in random spot locations. There was a greater degree of rusting on the bottom edges, particularly at the locations of the vertical tie rods.
4. The open-cell seals that were added to the gate at the ends were crushed. KG was asked to replace these seals.
5. The 1/8" butyl rubber cover had separated from the seals in several locations. KG was asked to replace this cover where separation occurred.
6. The continuous neoprene bearing pads that were added to the seal at the bottom edges were slightly dimpled but still serviceable, see **Photo 2**.
7. The barrier wall bolts did not appear to be deflected to a greater extent than Cycle 4 or 5. All remaining bolts were still in place.

8. The bearing pads between the casting basin gate barrier wall support and the truss chords at Gate Section 1 showed uneven compression at the ends of the gate sections. At one end of the gate, this bearing pad did not have full contact with the truss chord, even though the bolts at that location showed high deflections, while at the other end, the bearing pads appeared to be fully in contact and compressed although there was little deflection in the bolts. The uneven compression appeared to be similar to Cycle 4 and 5.
9. Barrier wall stiffeners showed local gouges at the stiffener edge. These gouges are typically 1/16" to 3/16" deep, and 1/2" to 1" tall, see **Photo 3**. The gouges may be from overgrinding during paint repair, however did not appear to be significantly worse than cycle 4 and 5.
10. Surface rusting was present at the barrier wall support angles and vertical tie rod assemblies see **Photo 4**.
11. The epoxy coating previously applied to the stainless steel clips in cycle 5 did not adhere.

#### Trusses and Fixtures Away From the Barrier Walls:

1. The paint was in good condition. Some of the upper horizontal surfaces showed minor pitting. There was minor damage in random spot locations.
2. There was minor rusting at some seal stop plates; however most were in good condition.
3. The spring assemblies appeared undamaged and in good condition with the exception noted in T1 Item 4 below. Some debris has accumulated between the spring pairs, see **Photo 5**.
4. The UHMW assemblies generally appeared undamaged and in good condition, see **Photo 6**.
5. The screw jack assemblies appeared undamaged and in good condition.
6. There was damaged paint and rusting on the truss to truss bearing plate assemblies.

#### **Specific Conditions**

KPFF noted the following specific conditions at the individual trusses and their barrier walls.

#### Truss T1

1. Damaged paint on upper truss-to-truss bearing plates.
2. Minor surface rusting at bottom seal stop plates, see **Photo 7**.
3. Minor surface rusting at continuous WT sections connecting spring assemblies to barrier wall.
4. Slightly bent threaded rod at the spring assembly at Grid 5.
5. Galled paint on the front sill bearing plates around the UHMW fasteners.
6. Grinding from previous paint repair has caused local pits at the back of the barrier wall. This may be from different coating thicknesses or some minimal loss of section. This does not appear to be worse than in Cycle 4 or 5.
7. The gate stop bearing plates showed signs of surface rusting
8. The Belleville spring tie rod plate connections at the gate barrier wall contained surface rust see **Photo 8**.
9. The grid A truss chord HSS had minor surface rust on the underside of the member at grid 5.5T.

10. KG has stated that the gate UHMW feet were not fabricated to the required 3" dimension on the drawings. Based on the as-built height it appears that there is very little wear to these pads and there is still approximately 1/4" of material to the bolt heads. These items were previously noted to be replaced during the cycle 6 float out, however based on the new information on the wearing of the pads, replacement was not required, see **Photo 9**.
11. The vertical seal support HSS had a small divot at 1T. This should be repaired per the previous weld repair procedure, see **Photo 10**.
12. Several areas of increased corrosion were found in the lower section of the gate barrier wall. Several areas were in locations of previous repairs, and several other locations were found after pressure washing of the barrier wall. The back of the barrier wall had not been completely pressure washed previously, so it is likely that these areas existed previously. The locations and repairs are below. See the RFI log for the complete repairs and reference sketches.
  - a. 9T Lower Barrier Wall - Grind out bad weld metal from previous repair and fill with weld metal per previous repair procedures, see **Photo 11**.
  - b. 9T Lower Barrier Wall: 1/4" diameter gouge - Grind out bad metal and fill per previous repair procedure.
  - c. 8T Lower Barrier Wall: 1" diameter gouge - Grind out bad metal and fill per previous repair procedure. Use backer plate per previous repair procedure.
  - d. 8T Lower Barrier Wall: 2" diameter gouge - Grind out bad metal and fill per previous repair procedure. Use backer plate per previous repair procedure.
  - e. 8T Lower Barrier Wall: 1/4" diameter gouge - Grind out bad metal and fill per previous repair procedure.
  - f. 7T Lower Barrier Wall: 1/4" diameter gouge - Grind out bad metal and fill per previous repair procedure.
  - g. 7T Lower Barrier Wall: 1/4" diameter gouge - Grind out bad metal and fill per previous repair procedure.
  - h. 7T Lower Barrier Wall: 1/2" diameter gouge - Grind out bad metal and fill per previous repair procedure. Use backer plate per previous repair procedure.
  - i. 6T Lower Barrier Wall - Grind out bad weld metal from previous repair and fill with weld metal per previous repair procedures.
  - j. 6T Lower Barrier Wall: 1/4" diameter gouge - Grind out bad metal and fill per previous repair procedure.
  - k. 6T Lower Barrier Wall: 1/2" diameter gouge - Grind out bad metal and fill per previous repair procedure.
  - l. 4T Lower Barrier Wall – The weld from the cover plate burnt through the barrier wall and is a source of additional corrosion. Repair per sketches provided, see **Photo 12**.
  - m. 3T Lower Barrier Wall - Grind out bad weld metal from previous repair and fill with weld metal per previous repair procedures.
  - n. 2T Lower Barrier Wall: 1" diameter gouge - Grind out bad metal and fill per previous repair procedure
  - o. 1T Lower Barrier Wall – Approximately (10) locations require repair, including previous repair locations. Location 1, 8, 9 and 10 should be ground out and filled per previous repair procedure. Location 2 should have the old weld material removed and filled per

previous repair procedures. Locations 3, 4, 5, 6 and 7 are all in close proximity. These locations should be ground out, a cover plate installed, and filled per previous repair procedures, see **Photo 13**.

- p. Where cover plates are required, the area should be repaired per the previous criteria. The cover plate should extend beyond the repaired area by 1" minimum. If the front cover plate is interrupted by a stiffener, another plate should be welded to maintain the 1" (1" min plate width).

### Truss T2

1. Movement of continuous bearing pad between bottom barrier wall support and truss up and out of the joint to varying degrees. This did not appear to be worse than Cycle 4 and 5 (dimensions are approximate):
  - a. 2" at Grid 1.5
  - b. ½" at Grid 5.5
2. Minor surface rust on bottom barrier wall support angle.
3. Grid 1T lower seal stop had small gouge at bearing plate weld. This should be repaired per previous weld repair procedure.

### Truss T3

1. Movement of continuous bearing pad between bottom barrier wall support and truss up and out of the joint to varying degrees. This did not appear to be worse than Cycle 4 and 5 (dimensions are approximate):
  - a. 1 ½" at Grid 3
  - b. 2" at Grid 4
  - c. 2" at Grid 5.5
  - d. 3" at Grid 6
  - e. 1" at Grid 7
2. Missing fasteners on the top barrier wall support at Grids 1.2 and 8.8 as noted in the Cycle 3, 4 and 5 reports.
3. The seal stops did not appear to be as damaged as the seal stops on the T1 or T2 sections of the gate. This indicates that the upper seal stops may not be in contact with the jambs as frequently as the lower stops.

### **Conclusions**

Overall, the gate is in good condition. The majority of the issues found were related to the barrier walls, or the connections between the barrier walls and the trusses.

**Recommendations**

Based on our review, KPFF recommends the following items to be completed. KPFF observed several of the Cycle 6 repairs being completed and KG has since verbally acknowledged all repairs have been completed.

1. Repairs to be completed during the Cycle 5 float-out
  - a. Clean the gate barrier walls
  - b. Repair all chipped or damaged paint per the gate specifications. KG has acknowledged cleaning, sandblasting, priming, repairing the epoxy and meeting the required cure times at all damaged paint, as well as previous coating repair locations.
  - c. Replace the crushed open cell seals at the gate ends.
  - d. Replace any 1/8" butyl rubber seal cover that has separated from the seals.
  - e. Repair the damage in the T1 gate barrier wall per the approved RFI with field adjustments.
  - f. Prepare and epoxy coat the stainless steel clips at the seal and continuous neoprene bearing pads per the recommendations of Norton Corrosion.
  - g. Install gate anode to the back of the barrier per the recommendations of Norton Corrosion.
2. Action items to be completed after gate replacement
  - a. Do not try to pull the seal stops on T3 to the jamb using the screw jacks. Contact of the jamb seal is all that is required.
  - b. Lightly Wash the Belleville springs and remove debris between the springs.
3. Action items to be completed during future gate removal by others:
  - a. Clean the gate barrier walls
  - b. Repair any chipped paint per the gate specifications.
  - c. Inspect and, if necessary, correct the continuous bearing pad between bottom barrier wall support and truss noted in T2 Item 1 and T3 Item 1.
  - d. Replace any open-cell seals or 1/8" seal covers that appear damaged or separated from the seals.
  - e. Inspect the gate structure and make repairs as necessary.

# APPENDIX A

## Gate Photographs



**Photo 1: Waterside Gate Barrier Wall**



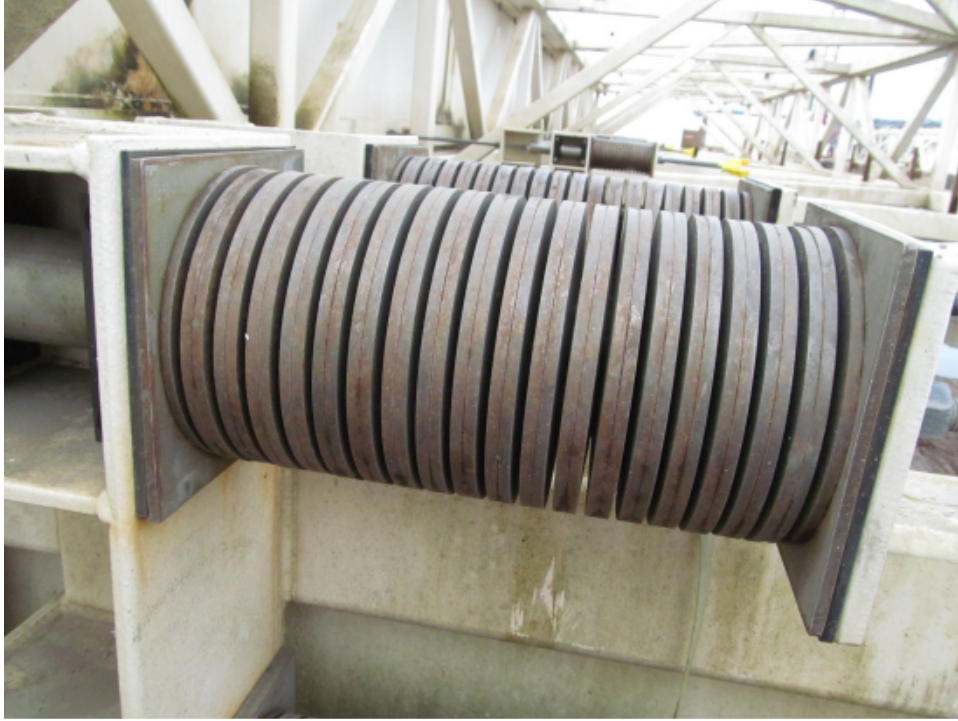
**Photo 2: Dimpled Neoprene Pad**



**Photo 3: Gouge in Barrier Wall Stiffener**



**Photo 4: Surface Rust at Barrier Wall Support Angle and Tie Rod Assemblies**



**Photo 5: Belleville Springs**



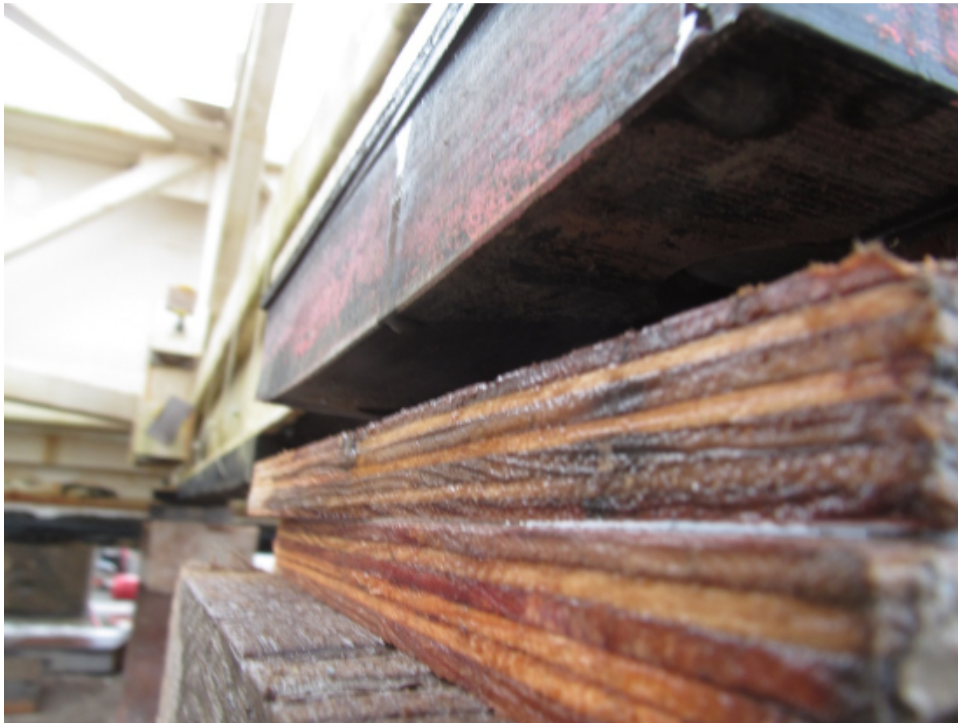
**Photo 6: Typical UHMW Bearing Pad**



**Photo 7: Rusting at Seal Stop End Plates**



**Photo 8: Surface Rust at Belleville Spring Tie Rod Plate**



**Photo 9: UHMW Gate Feet Skids**



**Photo 10: Gouge in Vertical HSS**



**Photo 11: Area of Increased Corrosion at Previous Repair at 9T**



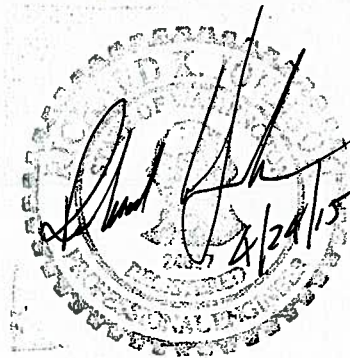
**Photo 12: 1" Previous Weld Repair at 4T with weld Burn Through**



**Photo 13: Area of Increased Corrosion in Barrier Wall near 1T**



101 Stewart Street, Suite 400  
Seattle, WA 98101



## MEMORANDUM

To: **Dustin Donahoo (KG)**  
From: **Trevor Lighty**  
Subject: **Gate Service Life**

Date: **April 4, 2015**  
Job No. **109055**  
File No.

As noted in the Cycle 3, Cycle 4 Gate and Cycle 5 Field Reports, minor, local repairs have been required to the gate structure during pontoon float out. Norton Corrosion provided recommendations to the Kiewit-General (KG) team prior to the Cycle 5 pontoon float out. These recommendations included anode installation on the front gate barrier wall, and epoxy coating of the stainless steel clips around the gate seals. These items were completed during the Cycle 5 pontoon float out.

During the Cycle 6 pontoon float out on March 10, 2015, KPFF conducted a visual observation of the gate structure. It was noted that the bottom, back face of the gate barrier wall had several areas requiring additional weld repairs. The majority of these locations were in locations that were previously repaired. In addition, the epoxy coating applied to the stainless steel clips did not adhere. Norton Corrosion conducted additional field observations on March 11, 2015.

Norton's March 11, 2015 field observations were completed after the back of the gate barrier wall was pressure washed. The pressure washing operation uncovered several other areas requiring repair. It is likely that these locations existed previously, since the back of the barrier wall had not been completely pressure washed prior to the cycle 6 float out.

In their report dated March 16, 2015, Norton states that the epoxy coating on the clips did not have sufficient cure time, and similar coating failures were noted along the gate where the coating did not adhere. Norton also noted that the anodes on the front of the gate were functioning as designed, protecting the gate where there was coating loss. The anodes on the front of the gate do not protect the small sump at the back of the gate barrier wall since it is located on the dry side of the gate.

In their March 16, 2015 report, Norton also recommended that the stainless steel clips be prepared for coating via sandblasting, and that the required cure time prior to submersion be met. In addition, KG prepared the previous coating areas on the gate, re-applied primer coat and the epoxy coating per the Operations and Maintenance (O&M) Manual, and allowed the coating to cure for the required time prior to submersion. As a secondary method of protection, Norton proposed adding additional anodes to the back sump area of the gate. This will locally protect the back of the barrier wall directly above the seal.

The installation of the anodes on the gate barrier wall is acceptable. Any damaged coating shall be repaired per the specifications. KG should take care to not damage the rubber seal, or expose the rubber to any products that will impact its service life when preparing the clips and applying the epoxy.

Provided that the anodes are adequately sized, the coating was successfully repaired, and the gate is inspected and maintained as required in the O&M Manual, including removal of the gate and inspection of the barrier wall at intervals not exceeding two years, the gate will last the 15 year service life required by the contract, which began when the structure was set into place in September, 2011.

# Krazan Field Report

## Gate Welding

**WELDING INSPECTION**

**REPORT NO.:** 13288SSR031315-JM

DATE: 3/13/2015  
PROJECT #: 06613288  
PROJECT: CASTING BASIN WELD REPAIRS  
LOCATION: 1301 W HURON  
KA P.M.: BILL THRONE

CONTRACTOR: KIEWIT  
PERMIT #:  
INSPECTOR: Juan Martinez  
JURISDICTION: ABERDEEN WA  
WEATHER: CONTROLLED ENVIRONMENT TEMP: 70 °

**STRUCTURAL STEEL**

☒ FIELD ☐ SHOP WELDING ☒ VISUAL ☐ MATERIAL ID

Item(s) Inspected:

VISUAL INSPECTIONS (VT) MAGNETIC PARTICLE INSPECTIONS CONDUCTED ON THE FOLLOWING LOCATIONS.

Location:

9T 1F VT MT. 3P/4P VT MT. 1T VT MT. 4T VT MT. 1.2T VT MT. 5F/6F VT MT. 13AP VT MT. 6APVT MT. 7F/8F VT MT. 11P V

Welder qualification / certification verified for:

WAB0 # 16658 04/15 EXP.

Position:	<input checked="" type="checkbox"/> FLAT	<input checked="" type="checkbox"/> VERTICAL	<input type="checkbox"/> OVERHEAD	<input type="checkbox"/> HORIZONTAL	<input type="checkbox"/> Filler Metal:
Process:	<input checked="" type="checkbox"/> SMAW	<input type="checkbox"/> FCAW	<input type="checkbox"/> SAW	<input type="checkbox"/> GMAW	<input type="checkbox"/> Other:
Weld Type:	<input checked="" type="checkbox"/> FILLET	<input type="checkbox"/> C.P.	<input type="checkbox"/> PLUG	<input type="checkbox"/> P.P.	<input type="checkbox"/> Other:
Weld Size:	<input checked="" type="checkbox"/> 3/16"	<input checked="" type="checkbox"/> 1/4"	<input type="checkbox"/> 3/8"	<input type="checkbox"/> 5/16"	<input type="checkbox"/> Other:
Codes:	<input checked="" type="checkbox"/> AWS	<input type="checkbox"/> AISC	<input type="checkbox"/> ASME	<input type="checkbox"/> IBC	<input checked="" type="checkbox"/> Other: ASTM

☒ NOTES

☐ DISCREPANCIES

100 % COMPLETE

ARRIVED ON SITE TO CONDUCT INSPECTIONS OF CATCH BASIN WELD REPAIRS. REVIEWED WPS  
VERIFIED WELDOR QUALIFICATION. PRE-HEAT NOT REQUIRED ON REPAIRS DUE TO MATERIAL  
THICKNESS AND CONTROLLED ENVIRONMENT. VISUAL INSPECTION OF WELD REPAIRS CONFORM TO  
AWS D1.1 (TABLE 6.1) MAGNETIC PARTICLE INSPECTIONS OF WELDED AREAS CONFORM TO AWS / ASTM  
STANDARDS

To the best of my knowledge, the above WAS performed in accordance with the approved plans, specifications and regulatory requirements.

Superintendent/Representative:

Technician:

 Juan C. Martinez  
CWI 08120251  
QC1 EXP. 12/1/2017

**Offices Serving the Western United States**

Lynnwood (425) 485-5519 • Poulsbo (360) 598-2126 • Puyallup (253) 939-2500

Pacific Testing & Inspection

Stud Weld Report

# Pacific Testing & Inspection LLC

2417 Harrison Avenue, Centralia, WA 98531  
Phone (360) 736-3922 Fax (360) 807-6002

## FIELD REPORT

Report # 005073

DATE: March 28, 2015  
PROJECT: SR 520 Pontoons  
LOCATION: 1301 West Heron Street, Aberdeen  
PROJECT #: 150027  
PERMIT #

CUSTOMER: Kiewit Infrastructure Group  
ATTENTION: Nick Allik  
ADDRESS: P.O. Box 1786  
Aberdeen, WA 98520

Time: 11:00

Temp: 52°

Weather: Overcast

Inspection Type: Weld

On site at Kiewit construction yard to perform special inspection per request for periodic welding inspection.

(1) Performed periodic welding inspection for welding of 3/8" x 2" stainless steel studs at gate truss #1. Removed and replaced (2) each studs due to breakage. All welding done was acceptable.

(2) Welder was Justin A. Wiedrich, Exp 4-2015, ID #16658

\*Note: Justin W. not certified for stainless, however this inspector did observe welding performed by Justin and all were acceptable.

INSPECTOR: Arthur Perkinson, WABO Inspector

REVIEWED BY: William A. Hacker, Technical Director

# O'Neill Inspectors Daily Report

## Gate Painting

IDR/FDR Sheet 1 of 4	QA Key Personnel Function Quality Testing Supervisor/ Structural Inspector	Tuesday, March 10, 2015
Weather AM See Attached Weather Report PM See Attached Weather Report		
Inspector Doug Brinius	IDR Report # 3/10/2015 DB	Project # 7826
<b>Subcontractor or Agent</b>	<b>Approved</b>	<b>Subcontractor's Representative/Title</b>
K-G Construction Managers	Yes	Aaron Byron, Dustin Donahoo
Gerdau	Yes	Eric Garvin
K-G General Superintendents	Yes	Joaquin Medina, Ben Jones, Don Vicari, Brian Meythaler, Jimmy Wells
K-G Quality Manager	Yes	Scott Thompson
Nuepricon	Yes	Jeff Wonderlich
Meko	Yes	Galen Johnson

Witness Point, Basin Gate Coating:  
T2 moved to precast beds at 11:00 AM; T1 and T3 note moved until 1PM due to sustained winds of 15 MPH or greater at crane. T2 began powerwashing operations at 12:00 PM; face of gate was powerwashed with 5000 PSI to clean in accordance with SSPC SP-12, low pressure water cleaning. T2 truss cleaned during day shift.

*Ongoing work, All Pontoons:* Final interior cell walks for pontoons F, G and H.  
*Significant Communications:* None.  
*Non-conforming work / corrective measures noted on this date:* None.  
*Safety-related problems /corrective measures :* None.  
*Traffic control setup / corrective measures:* None.  
*Night Shift:* Cleaning T1 and T3 sections of gate.

GATE  
REPAIR
 Photos/Videos taken today? ☐ Yes ☒ No File: \_\_\_\_\_

Inspector's Shift Hours

 From: 9:00 AM  
 To: 9:30 PM

Doug Brinius

Inspector's Signature

3/10/2015

Date

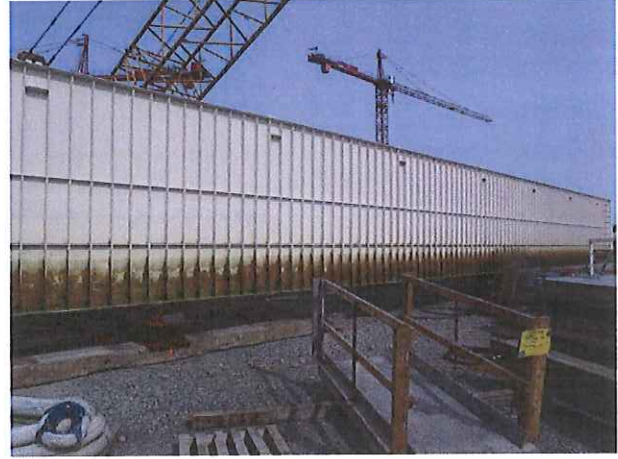
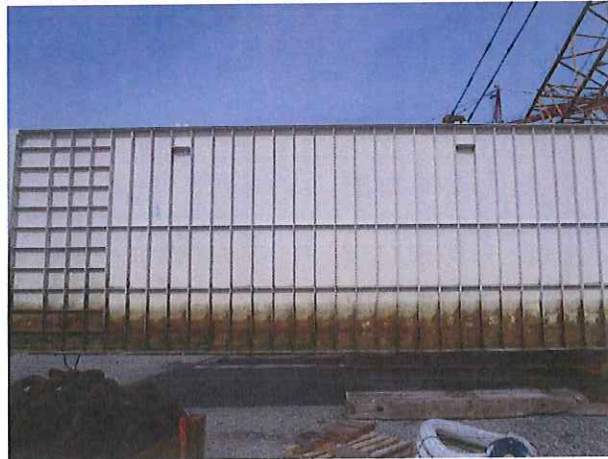
Scott Thompson

Reviewed By

3-11-15

Date

IDR Sheet Sheet 3 of 4	QA Key Personnel Function Structural Inspector	Date Tuesday, March 10, 2015
Inspector Doug Brinius		IDR Report # 3/10/2015 DB
Inspector's Notes		



TOP SIX: Gate walk, pre-cleaning

IDR Sheet	QA Key Personnel Function	Date
Sheet 4 of 4	Structural Inspector	Tuesday, March 10, 2015
Inspector	IDR Report #	
Doug Brinius	3/10/2015 DB	
Inspector's Notes		



TOP SIX: Gate walk, pre-cleaning

Wednesday, March 11, 2015

IDR/FDR Sheet 1 of 5	QA Key Personnel Function Quality Testing Supervisor/ Structural Inspector	
Weather AM See Attached Weather Report PM See Attached Weather Report		
Inspector Doug Brinius	IDR Report # 3/11/2015 DB	Project # 7826
Subcontractor or Agent	Approved	Subcontractor's Representative/Title
K-G Construction Managers	Yes	Aaron Byron, Dustin Donahoo
Gerdau	Yes	Eric Garvin
K-G General Superintendents	Yes	Joaquin Medina, Ben Jones
K-G Quality Manager	Yes	Scott Thompson
Long Painting	Yes	Dave

Witness Point, Basin Gate Coating:

T1, T2 and T3 trusses moved to precast area and. facets of gate powerwashed with 5000 PSI in accordance to SSPC-SP12, low pressure water cleaning to remove deleterious materials, loose rust, loose mill scale and loose coatings. KG Aaron Byron lead repair walk under Trevor Lightly of KPFF's direction. The following notes were made during the walk:

1. All paths of visible trust will be traced back to origins; this may require isolated disassembly and/or seal removal.
2. All areas that cannot be sandblasted will be ground with wire wheel brush
3. All repair plates added during cycle 5 floatout shall be re-inspected, even if rust is not visible at first

Surface cleanliness was tested in accordance to SC-2 non-visual specifications; two tests on T1 truss preformed for each of the following categories; no unpremissable amounts detected (test methods within paraenthesis):

1. Chloride contaminates: < 1 µg/cm<sup>2</sup> (pipette and test strip)
2. Ferrous Ion Levels: None identified (test strip)
3. Sulfate contaminates: 5 µg/cm<sup>2</sup> (clorimeter)

The following tests were preformed as well; these tests are not contractually required:

1. Nirite contaminates: None identified (test strip)
2. Ph: 4 (test strip)

*Ongoing work, All Pontoons:* Dive inspections upon pontoons H and G.

*Significant Communications:* None.

*Non-conforming work / corrective measures noted on this date:* None.

*Safety-related problems /corrective measures :* None.

*Traffic control setup / corrective measures:* None.

*Night Shift:* Preparing for blasting/coatings operations .

Photos/Videos taken today?

☐ Yes ☒ No

File: \_\_\_\_\_

Inspector's Shift Hours

From: 7:00 AM

To: 3:30 PM

Doug Brinius

Inspector's Signature

3/11/2015

Date

Scott Thompson

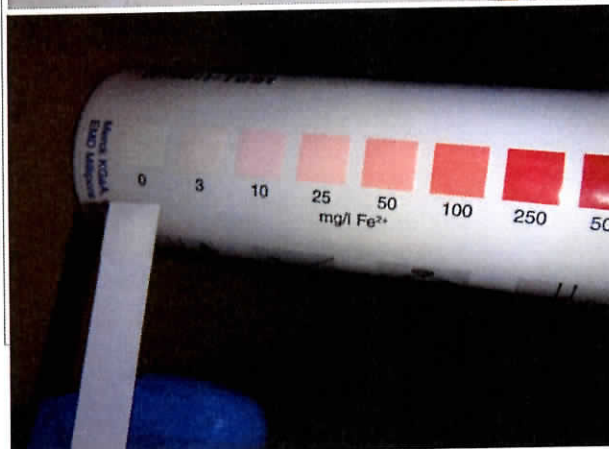
Reviewed By

3-11-15

Date

Gate  
Repairs  
of  
Pontoon  
Final  
Citizens

IDR Sheet Sheet 3 of 5	QA Key Personnel Function Structural Inspector	Date Wednesday, March 11, 2015
Inspector Doug Brinius		IDR Report # 3/11/2015 DB
Inspector's Notes		



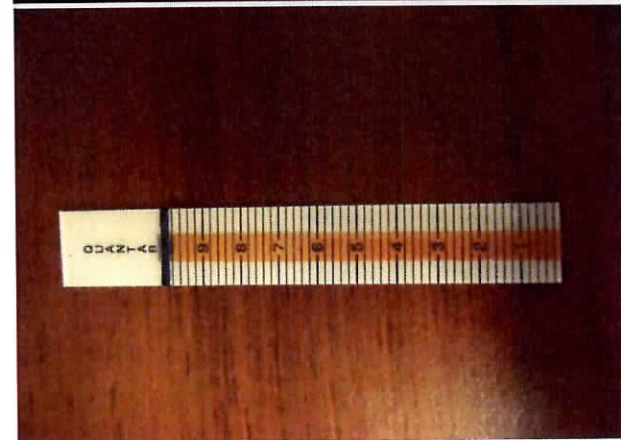
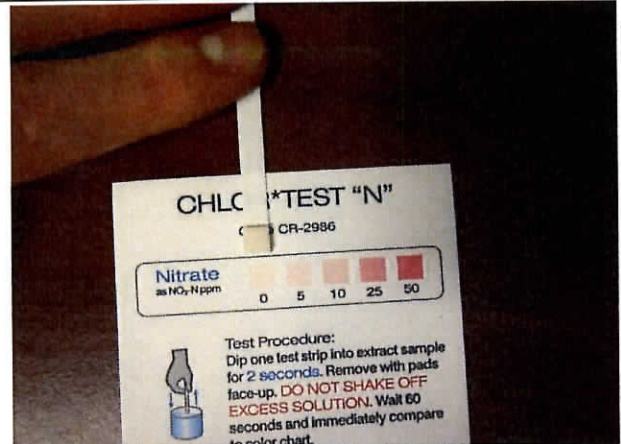
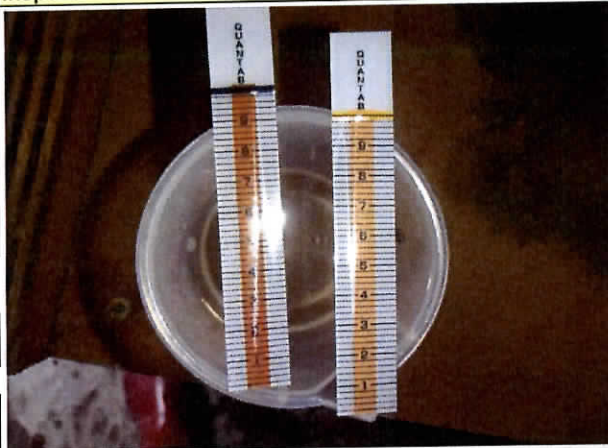
TOP SIX: Typical coating failures, ferrous iron ion testing

IDR Sheet	QA Key Personnel Function	Date
Sheet 4 of 5	Structural Inspector	Wednesday, March 11, 2015
Inspector	IDR Report #	
Doug Brinius	3/11/2015 DB	
Inspector's Notes		



TOP SIX: Gate coating operations (powerwasher, typical staining), chloride and sulfate testing, T1/T2/T3 sections of gate

IDR Sheet Sheet 5 of 5	QA Key Personnel Function Structural Inspector	Date Wednesday, March 11, 2015
Inspector Doug Brinius		IDR Report # 3/11/2015 DB
Inspector's Notes Continued		



TOP SIX: Chloride and nitrite testing, T1/T2/T3 sections of gate

IDR/FDR Sheet 1 of 9	QA Key Personnel Function Quality Testing Supervisor/ Structural Inspector	Thursday, March 12, 2015
<b>Weather</b> AM See Attached Weather Report                      PM See Attached Weather Report		
Inspector Doug Brinius	IDR Report # 3/12/2015 DB	Project # 7826
<b>Subcontractor or Agent</b>	<b>Approved</b>	<b>Subcontractor's Representative/Title</b>
K-G Construction Managers	Yes	Aaron Byron, Dustin Donahoo
K-G General Superintendents	Yes	Joaquin Medina, Ben Jones
K-G Quality Manager	Yes	Scott Thompson
Long Painting	Yes	Dave Bartlett

Witness Point, Basin Gate Coating:  
 T1, T2 and T3 trusses of basin gate powerwashed with 5000 PSI in accordance to SSPC-SP12, low pressure water cleaning to remove deleterious materials, loose rust, loose mill scale and loose coatings. Surface cleanliness was tested in accordance to SC-2 non-visual specifications; five tests on each of the trusses preformed for each of the following categories. Chloride testing preformed with pipette in conjunction with KTA SCAT test strips, Ferrous ion level testing preformed with KTA SCAT swab with demineralized water and indicator strips, Sulfate contaminates levels determined by KTA clorimeter). The following numbers correspond to the test areas as identified in the attached maps (Chloride Contaminates= CC, Ferrous Ion Levels= FIL, Sulfate Contaminates= SC):

1. CC: < 1 µg/cm<sup>2</sup> / FIL: None Detected / SC: 5 µg/cm<sup>2</sup>
2. CC: < 1 µg/cm<sup>2</sup> / FIL: None Detected / SC: 3 µg/cm<sup>2</sup>
3. CC: 1 µg/cm<sup>2</sup> / FIL: None Detected / SC: 12 µg/cm<sup>2</sup> (Noted that this was at the bottom side of truss, where powerwashing was splattering debris back onto gate. Area of concern cleaned and retested in test 5)
4. CC: 0 µg/cm<sup>2</sup> / FIL: None Detected / SC: 4 µg/cm<sup>2</sup>
5. CC: Trace / FIL: None Detected / SC: 9 µg/cm<sup>2</sup> (Noted that cleaning had been preformed in this area which was a concern in test 3)
6. CC: < 1 µg/cm<sup>2</sup> / FIL: None Detected / SC: 4 µg/cm<sup>2</sup>
7. CC: 1 µg/cm<sup>2</sup> / FIL: None Detected / SC: 8 µg/cm<sup>2</sup> (Noted that cleaning had been preformed in this area which was a concern in test 3+5)
8. CC: < 1 µg/cm<sup>2</sup> / FIL: None Detected / SC: 5 µg/cm<sup>2</sup>
9. CC: Trace / FIL: None Detected / SC: 7 µg/cm<sup>2</sup>
10. CC: 0 µg/cm<sup>2</sup> / FIL: None Detected / SC: 3 µg/cm<sup>2</sup>
11. CC: 0 µg/cm<sup>2</sup> / FIL: None Detected / SC: 4 µg/cm<sup>2</sup>
12. CC: Trace/ FIL: None Detected / SC: 4 µg/cm<sup>2</sup>
13. CC: < 1 µg/cm<sup>2</sup> / FIL: None Detected / SC: 5 µg/cm<sup>2</sup>
14. CC: < 1 µg/cm<sup>2</sup> / FIL: None Detected / SC: 7 µg/cm<sup>2</sup>
15. CC: Trace / FIL: None Detected / SC: 7 µg/cm<sup>2</sup>

Abrasive blasting began at 10:45 AM; preliminary independant inspection of anchor profile preformed by QC Dave Bartlett and the undersigned, as witnessed by WSDOT representative preformed at 1:45PM. TestX strips revealed an average profile of 3 mils; areas where hand tools were used achieved average profile of 2.1 mils.

*Continued Page 3:*

 GATE  
Repairs

 Photos/Videos taken today?    ☐ Yes    ☒ No    File: \_\_\_\_\_

## Inspector's Shift Hours

 From: 6:30 AM  
 To: 3:30 PM

Doug Brinius

Inspector's Signature

3/12/2015

Date

Scott Thompson

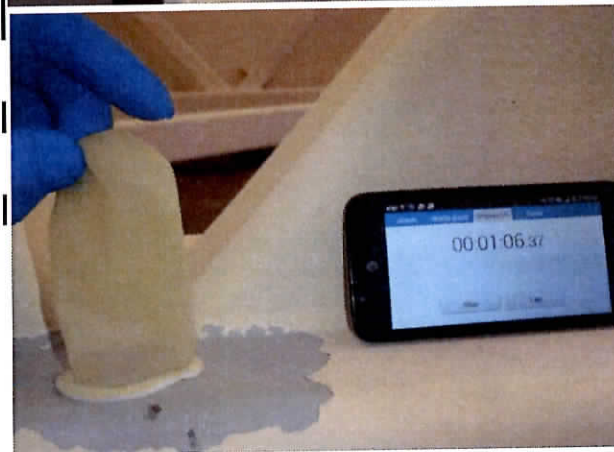
Reviewed By

3-13-15

Date

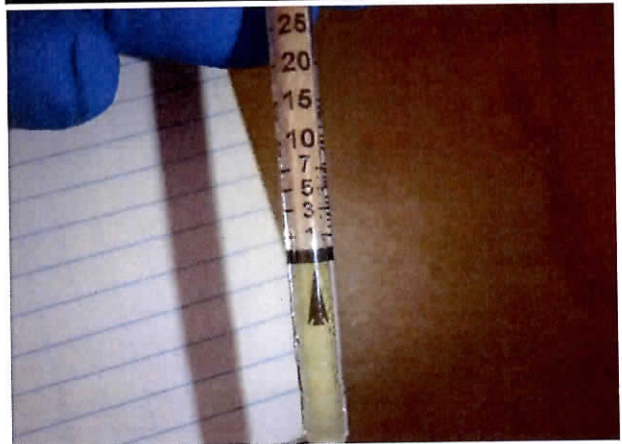
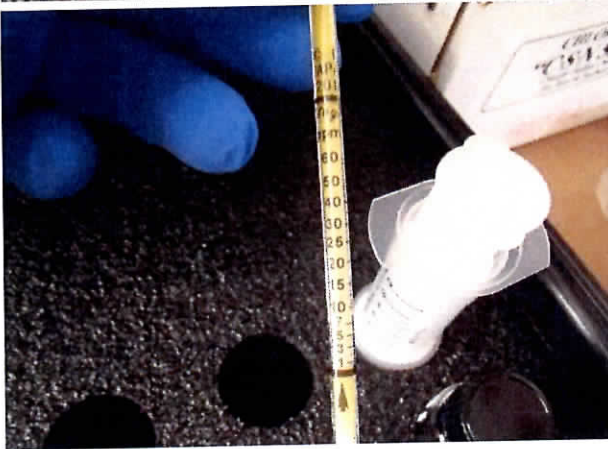
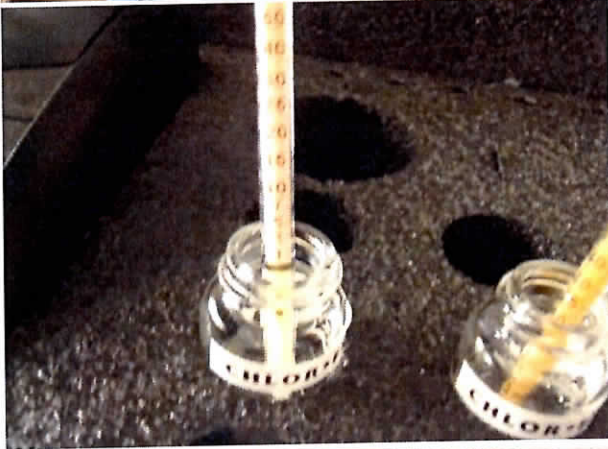
IDR Sheet Sheet 3 of 9	QA Key Personnel Function Structural Inspector	Date Thursday, March 12, 2015
Inspector Doug Brinius	IDR Report # 3/12/2015 DB	
Inspector's Notes		
<p>Continued:</p> <p>A single test for each of the trusses were preformed as well; these tests are not contractually required:</p> <ol style="list-style-type: none"><li>1. Niriite contaminates: None identified (test strip)</li><li>2. Ph: 5 (test strip)</li></ol> <p>Abrasive blasting will continue until 6PM this night; welding for repairs upon the gate scheduelld for 7AM (no prime coat will be applied as of the date of this IDR). The undersigned will be present prior to start of operations to check for flash rusing.</p> <p><i>Ongoing work, All Pontoons:</i> Dive repairs upon pontoons F and G.</p> <p><i>Significant Communications:</i> None.</p> <p><i>Non-conforming work / corrective measures noted on this date:</i> None.</p> <p><i>Safety-related problems /corrective measures :</i> None.</p> <p><i>Traffic control setup / corrective measures:</i> None.</p> <p><i>Night Shift:</i> Abrasive blasting basin gate until 6PM.</p>		

IDR Sheet		QA Key Personnel Function		Date
Sheet	4 of 9	Structural Inspector		Thursday, March 12, 2015
Inspector		IDR Report #		
Doug Brinius		3/12/2015 DB		
Inspector's Notes				



TOP SIX: Sulfate and chloride sleeve testing, casting basin gate

IDR Sheet	QA Key Personnel Function	Date
Sheet 5 of 9	Structural Inspector	Thursday, March 12, 2015
Inspector Doug Brinius		IDR Report # 3/12/2015 DB
Inspector's Notes Continued		



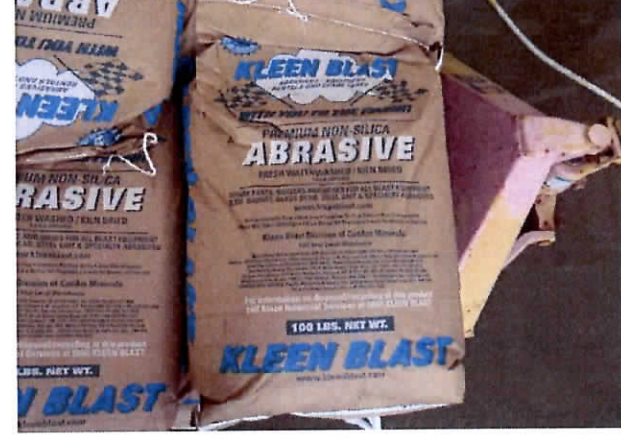
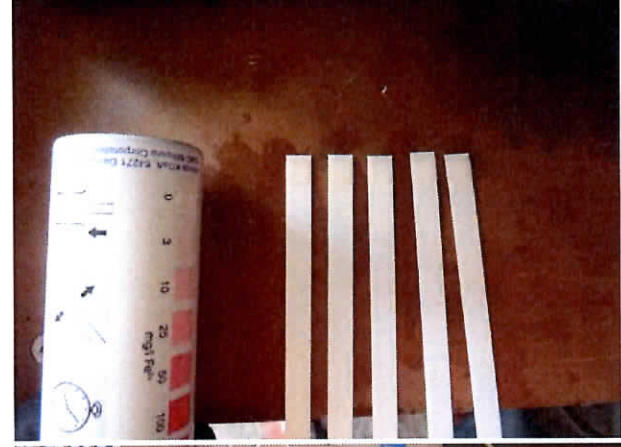
TOP SIX: Sulfate and chloride results, casting basin gate

IDR Sheet		QA Key Personnel Function		Date
Sheet	6 of 9	Structural Inspector		Thursday, March 12, 2015
Inspector		IDR Report #		
Doug Brinius		3/12/2015 DB		
Inspector's Notes Continued				



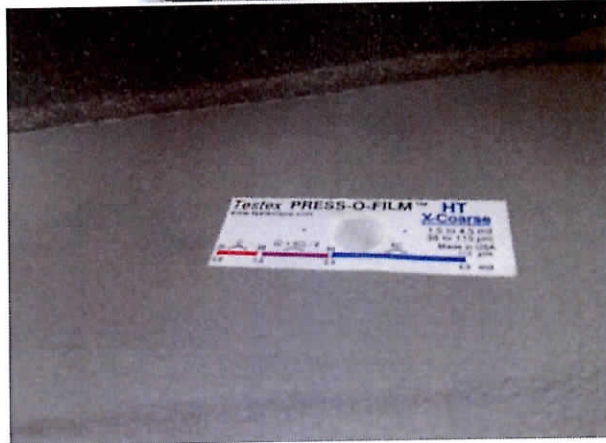
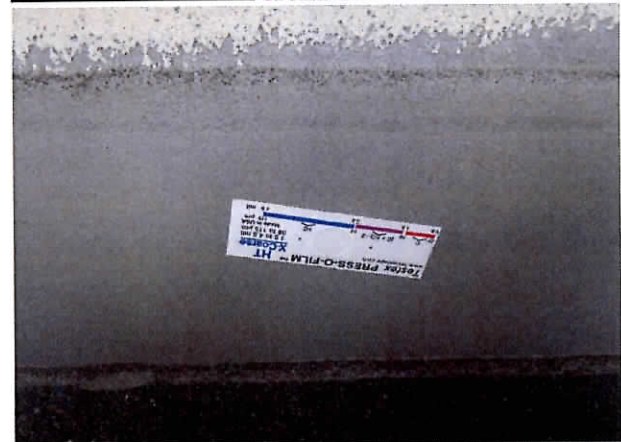
TOP SIX: Sulfate and chloride sleeve testing, casting basin gate

IDR Sheet Sheet 7 of 9	QA Key Personnel Function Structural Inspector	Date Thursday, March 12, 2015
Inspector Doug Brinius		IDR Report # 3/12/2015 DB
Inspector's Notes Continued		



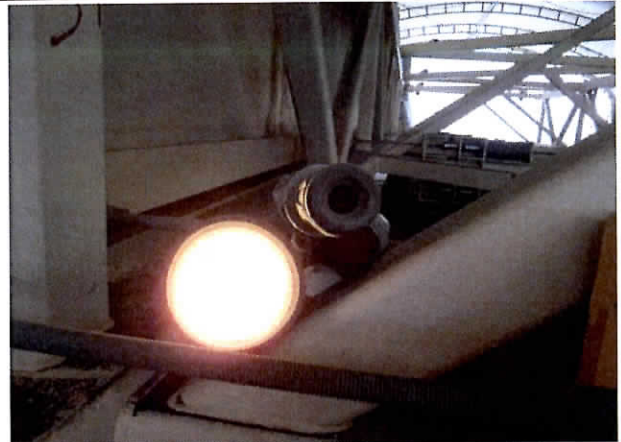
TOP SIX: KTA FIL test results, blast medium, basin gate

IDR Sheet Sheet 8 of 9	QA Key Personnel Function Structural Inspector	Date Thursday, March 12, 2015
Inspector Doug Brinius		IDR Report # 3/12/2015 DB
Inspector's Notes Continued		



TOP SIX: Surface anchor profile, repair profile, noted areas of blasting and coatings failure

IDR Sheet	QA Key Personnel Function	Date
Sheet 9 of 9	Structural Inspector	Thursday, March 12, 2015
Inspector	IDR Report #	
Doug Brinius	3/12/2015 DB	
Inspector's Notes Continued		



TOP SIX: Surface profile, repair profile, noted areas requiring more abrasive

\* = Sec 619 For more information.

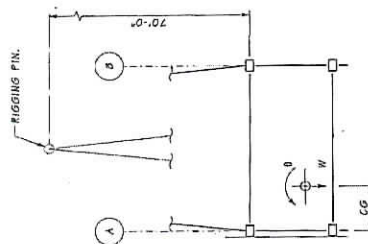
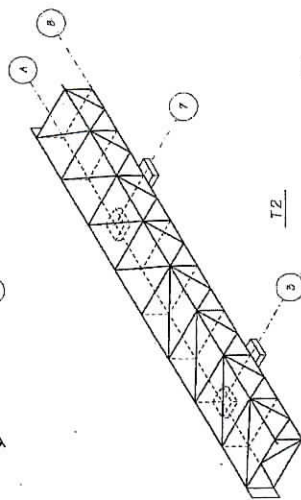
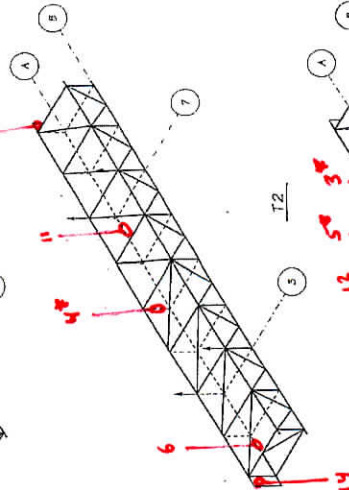
TRUSS DATA IN AIR		
TRUSS	WEIGHT W (TONS)	CG (FT. FROM GRID A)
T3	41.6	3.77
T2	41.6	3.88
T1	45.9	3.35

TRUSS	WEIGHT W (TONS)	CG (FT. FROM GRID A)	ROTATION ANGLE $\theta$ (DEG)
T5	55.9	2.90	0.7
T2	25.2	1.29	2.1
T1	27.1	1.44	1.6

**NOTE:**

1. T1 AND T2 FULLY IMMersed, T3 IMMersed TO EL +8.0'.
2. RIGGING PIN HEIGHT ABOVE SPREADER BEAM = 70'-0".
3. ROTATION CCW ABOUT RIGGING PIN.

SPREADER BURN NOT NEEDED WITH  
75 FT LONG PESTICIDE LEGS.

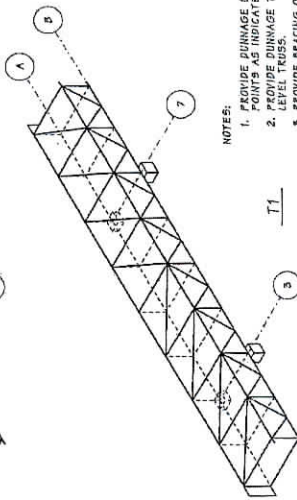
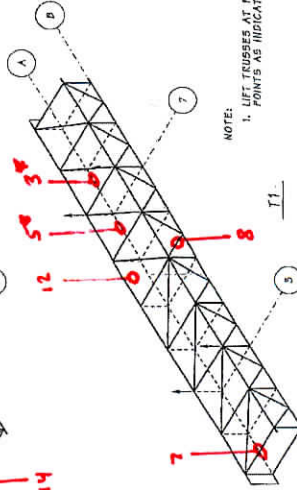


NOTE:

1. LIFT TRUSSES AT PICK POINTS AS INDICATED.

Released For Construction  
3/3/11 Paul Brown DQ AM

11/7/2011 11:27:27 AM 11/7/2011 11:27:27 AM



NOTES.

1. PROVIDE DUNNAGE UNDER SUPPORT POINTS AS INDICATED.
2. PROVIDE DUNNAGE TO MAINTAIN LEVEL TRUSS.
3. PROVIDE BRACING OR TIEDOWNS TO RESIST WIND LOADS.

## GATE LIFTING

FILE NAME	ctc4ed9p9v4n4d8orm55t4n554_gf_0c.dgn	
TIME	11:02 PM	
DATE	3/20/11	
DESIGNED BY	MADON	
CHECKED BY	M. DUNN	
APPROVED BY	W. OCHANSKI	
PROJ. ENGR.	T. SCHNEITZER	
REV	6 - RELEASE FOR CONSTRUCTION	03-25-11

FILE NAME: c:\new\additonal\help\pbl\mus52846\mus52846.ppt

FED AID PROJ NO.

**Kiewit**  
**General**  
**HNTB**  




Washington State  
Department of Transportation  
**AS-BUILT**

**AS-BUILT**

SR 520

SR 520  
PONTON CONSTRUCTION  
DESIGN-BUILD PROJECT

# DESIGN-BUILD PROJECT PACKAGE B - SITE FACILITY IMPROVEMENTS

## GATE LIFTING AND STORAGE

G36

169 OF 270



Friday, March 13, 2015

IDR/FDR Sheet 1 of 13	QA Key Personnel Function Quality Testing Supervisor/ Structural Inspector	PM See Attached Weather Report	
Weather AM See Attached Weather Report		IDR Report # 3/13/2015 DB	Project # 7826
Inspector Doug Brinius	Subcontractor's Representative/Title		
Subcontractor or Agent	Approved		
K-G Construction Managers	Yes	Aaron Byron, Dustin Donahoo	
K-G General Superintendents	Yes	Joaquin Medina, Ben Jones	
K-G Quality Manager	Yes	Scott Thompson	
Long Painting	Yes	Dave Bartlett	

Witness Point, Basin Gate Coating:

The undersigned was present at 6:45AM to investigate all trusses for flash rusting, as old coating system was abrasive blasted down to substrate on 3/12/15 (stopped at end of shift at 6:00PM on 3/12/15). Long painting has confirmed that blasted surfaces would be blown with compressed air and wiped with Methyl Ethel Keytone prior to primer coat.

Sandblasting operations continued for all trusses; non-silica abrasive blast medium Kleen-Blast with abrasive blast #6/#7 nozzle used to create blast pattern of 2.5"-3" for spot repairs. Inspection of anchor profile preformed by QC Dave Bartlett and the undersigned, as witnessed by WSDOT representative. Testex Press-O-Film strips (X-coarse) read with spring micrometer used in areas of abrasive blasting repair and grinder wheel spot repairs, recorded in mils; Sherman Williams has recommended a minimum anchor profile of 2 mils. The following are the anchor profile results:

Truss 2: 3.4, 3.0, 3.1, 2.0 (grinder wheel repair), 3.4, 3.8, 3.0, 3.3  
Truss 3: 2.1 (grinder wheel repair), 3.3, 3.0, 3.5, 3.8, 4.1, 2.5 (grinder wheel repair), 3.0

Juan Martinez of Krazan employed UT testing and was present to verify repairs upon new coatings failures and upon damaged areas to gate as outlined by Trevor Lighty, PE (see attached email for locations and direction). After abrasive blasting the front faces of trusses 2 and 3, trusses were blown with compressed air and treated with Methyl Ethel Keytone prior to Zinc application. 3.5 gallons of Corothane I Galvapac 1k Zinc Primer mixed via electric hand paddle for 3 minutes, and agitated within containers at 45 minutes. Primer applied with 3/8" synthetic rollers and natural bristle hand brushes; QA and QV representatives present to follow priming crews to verify no holidays or missed areas during application. Painters preformed independent QC verification of prime coatings with Wet Film Gauge; all of these readings were between 5 to 6 mils; any areas under 4.5 mils (Sherwin Williams recommendation) were reapplied and retested with WFT gauge. QA preformed WFT gauge testing on repairs as they were being placed, and found all final results to be within 5-6 mils. Priming of front faces of these trusses concluded 8:00PM; average atmospheric conditions of QA instrumentation revealed coating environment of between 68 F - 72 F, with humidity ranging from 30% to 40% within tent; high/low thermometers have been activated by KG QC to monitor humidity and temperature of primer cure.

Ongoing work, All Pontoons: Dive repairs upon pontoons F and G.

Significant Communications: None.

Non-conforming work / corrective measures noted on this date: None.

Safety-related problems / corrective measures: None.

Traffic control setup / corrective measures: None.

Night Shift: None.

Photos/Videos taken today? ☐ Yes ☒ No File: \_\_\_\_\_

Inspector's Shift Hours

From: 6:30 AM

To: 8:30 PM

Doug Brinius

Inspector's Signature

3/13/2015

Date

Scott Thompson

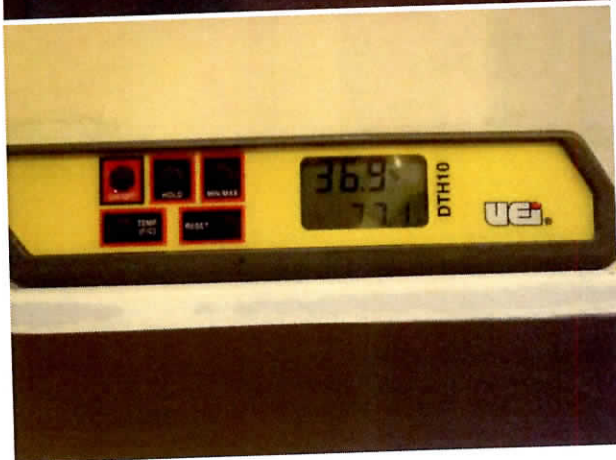
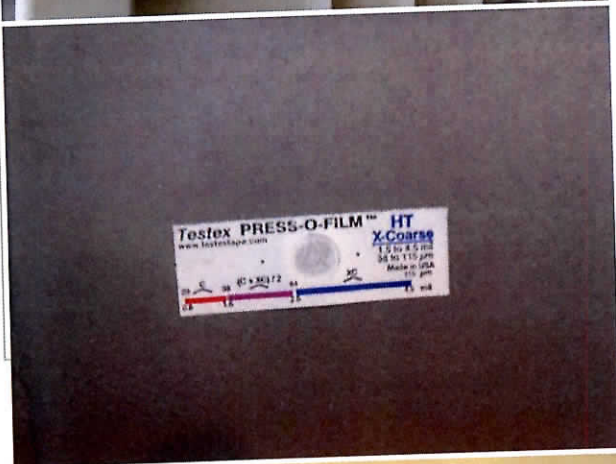
Reviewed By

3-16-15

Date

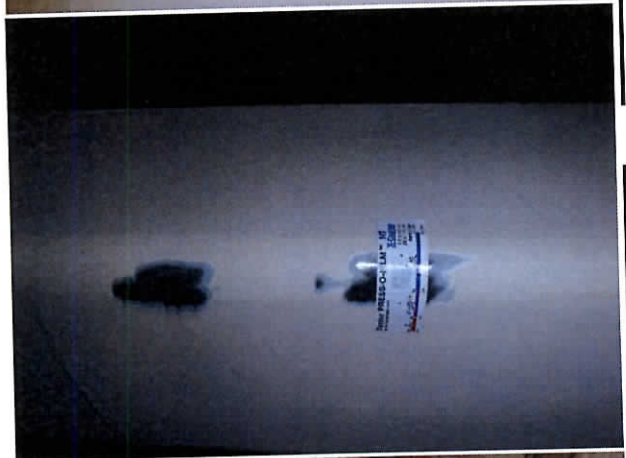
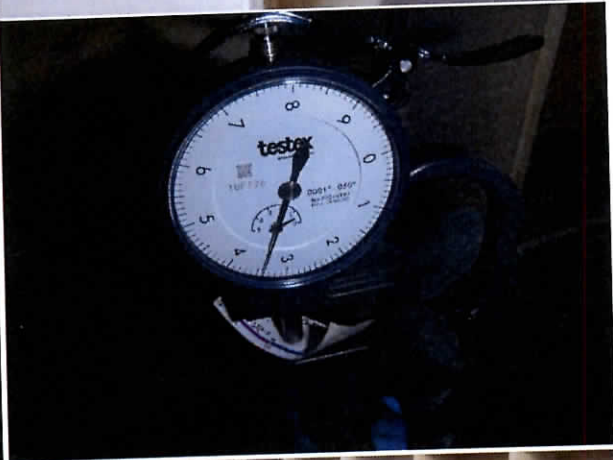
GATE  
Repairs

IDR Sheet Sheet 3 of 13	QA Key Personnel Function Structural Inspector	Date Friday, March 13, 2015
Inspector Doug Brinius		IDR Report # 3/13/2015 DB
Inspector's Notes		



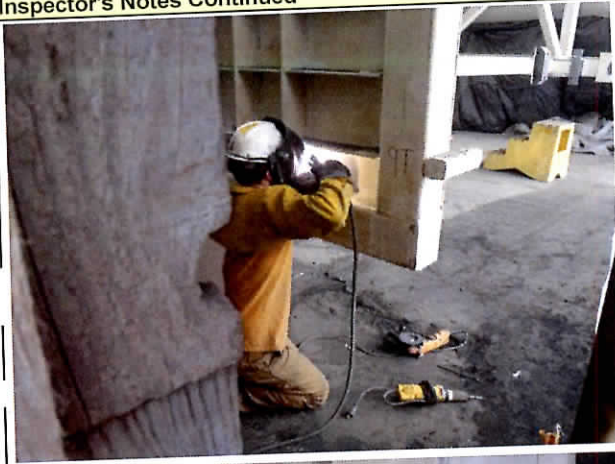
TOP SIX: Atmospheric condions in tents 1 and 2, anchor profile testing, blast removal of failing coatings

IDR Sheet	QA Key Personnel Function	Date
Sheet 4 of 13	Structural Inspector	Friday, March 13, 2015
Inspector Doug Brinius	IDR Report # 3/13/2015 DB	
Inspector's Notes		



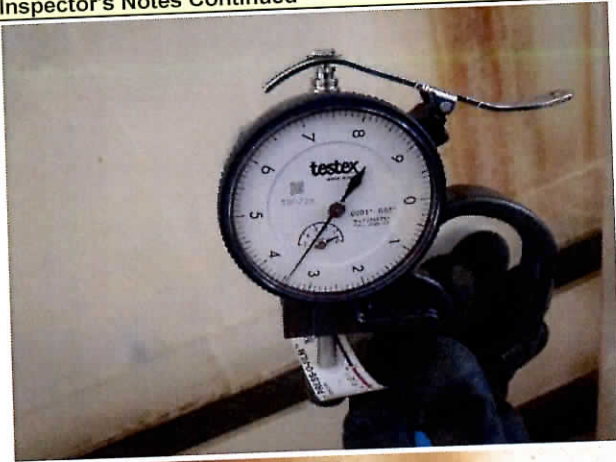
TOP SIX: Substrate repairs, anchor profile testing, blast removal of failing coatings

IDR Sheet	QA Key Personnel Function	Date
Sheet 5 of 13	Structural Inspector	Friday, March 13, 2015
Inspector Doug Brinius	IDR Report # 3/13/2015 DB	
Inspector's Notes Continued		



TOP SIX: Substrate repairs, anchor profile testing, blast removal of failing coatings

IDR Sheet Sheet 6 of 13	QA Key Personnel Function Structural Inspector	Date Friday, March 13, 2015
Inspector Doug Brinius		IDR Report # 3/13/2015 DB
Inspector's Notes Continued		



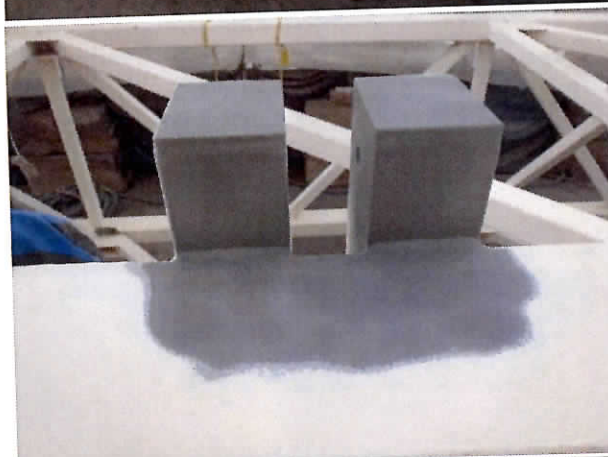
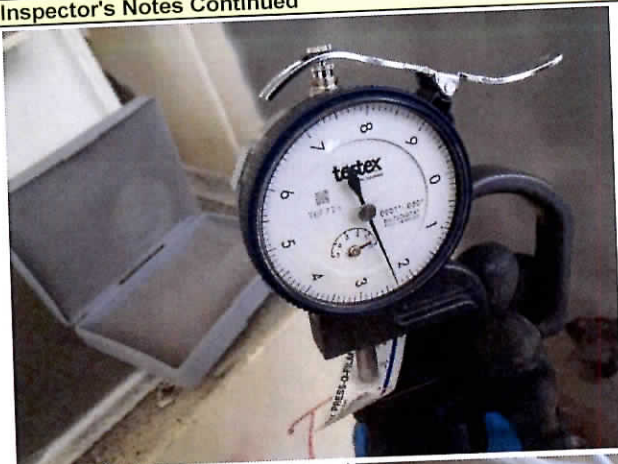
TOP SIX: Repairs of truss 1, casting basin gate

IDR Sheet Sheet 7 of 13	QA Key Personnel Function Structural Inspector	Date Friday, March 13, 2015
Inspector Doug Brinius		IDR Report # 3/13/2015 DB
Inspector's Notes Continued		



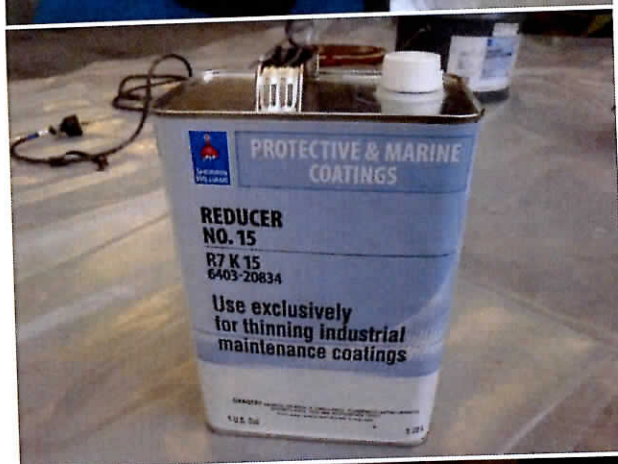
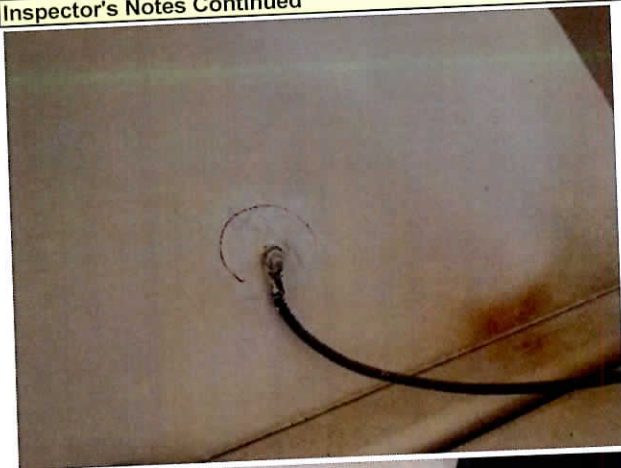
TOP SIX: Mag particle testing, weld repairs, anchor profile, Truss 1

IDR Sheet	QA Key Personnel Function	Date
Sheet 8 of 13	Structural Inspector	Friday, March 13, 2015
Inspector Doug Brinius	IDR Report # 3/13/2015 DB	
Inspector's Notes Continued		



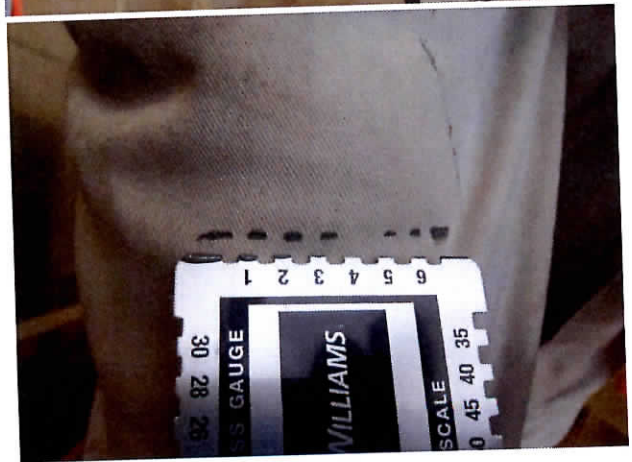
TOP SIX: blasted surfaces, solvent, anchor profile of Trusses 2 and 3

IDR Sheet	QA Key Personnel Function	Date
Sheet 9 of 13	Structural Inspector	Friday, March 13, 2015
Inspector	IDR Report #	
Doug Brinius	3/13/2015 DB	
Inspector's Notes Continued		

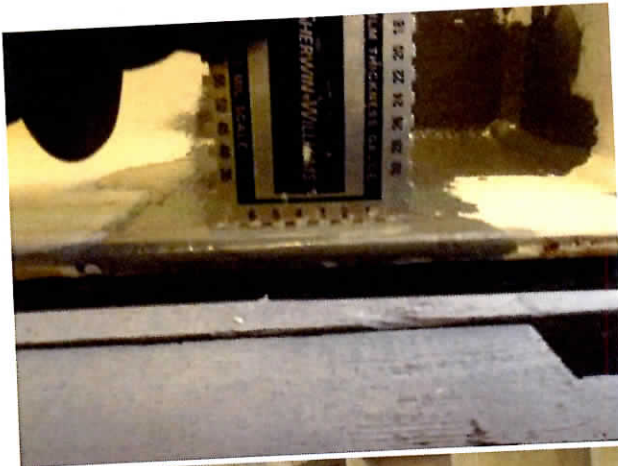


TOP SIX: Zinc primer mixing, atmospheric testing Trusses 2 and 3

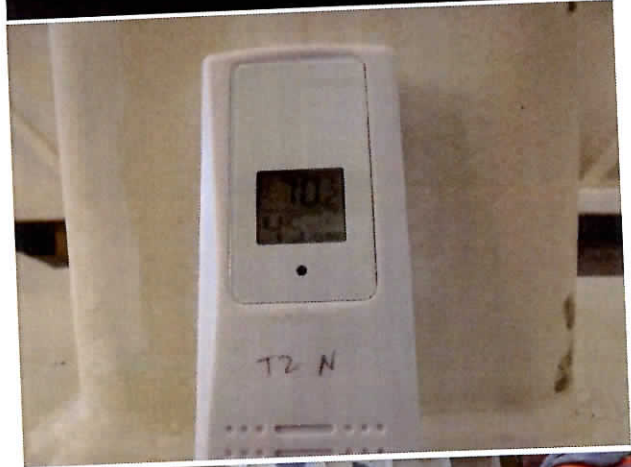
IDR Sheet Sheet 10 of 13	QA Key Personnel Function Structural Inspector	Date Friday, March 13, 2015
Inspector Doug Brinius		IDR Report # 3/13/2015 DB
Inspector's Notes Continued		



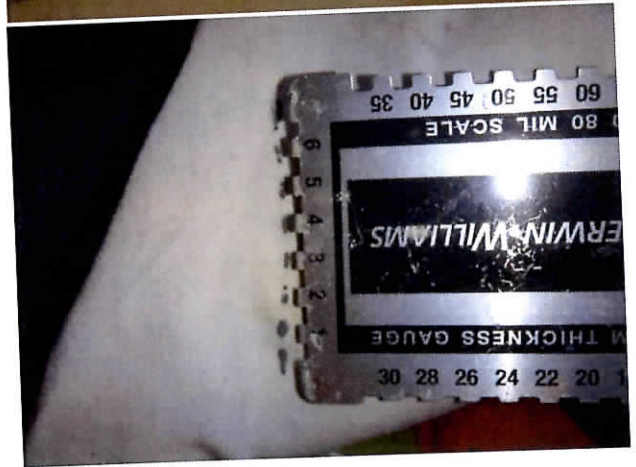
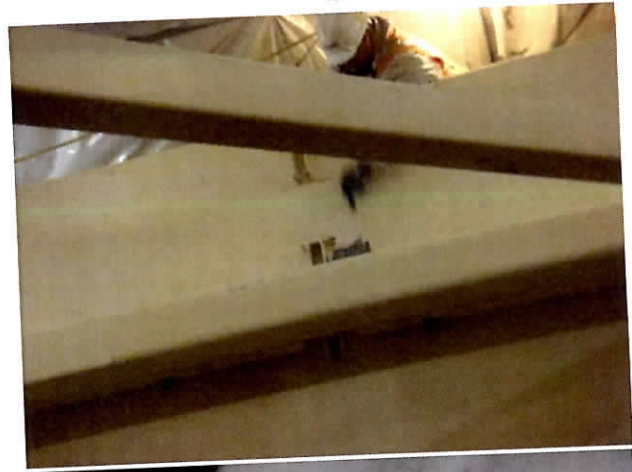
TOP SIX: Zinc priming, WFT testing, atmospheric testing Trusses 2 and 3



TOP SIX: Zinc priming, WFT testing, Trusses 2 and 3



TOP SIX: Zinc priming and atmospheric conditions, Trusses 2 and 3



TOP FOUR: Zinc priming, Trusses 2 and 3

IDR/FDR Sheet 1 of 8	QA Key Personnel Function Quality Testing Supervisor/ Structural Inspector	PM See Attached Weather Report
Weather AM See Attached Weather Report		IDR Report # 3/15/2015 DB
Inspector Doug Brinius		Project # 7826
Subcontractor or Agent	Approved	Subcontractor's Representative/Title
K-G Construction Managers	Yes	Aaron Byron, Dustin Donahoo
K-G General Superintendents	Yes	Joaquin Medina, Ben Jones
K-G Quality Manager	Yes	Scott Thompson
Long Painting	Yes	Dave Bartlett

GATE  
16 PMSWitness Point, Basin Gate Coating:

The undersigned was present at 6:45AM to investigate all trusses for flash rusting, as old coating system was abrasive-blasted to substrate on 3/14/15 upon T1. Long painting has confirmed that blasted surfaces would be blown with compressed air and wiped with Methyl Ethel Keytone prior to primer coat.

60% of abrasive blasting operations finished on truss 1 on 3/14/15 blown with compressed air and wiped with Methyl Ethel Keytone (overlap cleaning into old coating system by at least 2" from repair prior to coating application). Inspection of anchor profile preformed by QC Dave Bartlett and the undersigned, as witnessed by WSDOT representative. Testex Press-O-Film strips (X-coarse) read with spring micrometer used in areas of abrasive blasting repair and grinder wheel spot repairs, recorded in mils; Sherman Williams has recommended a minimum anchor profile of 2 mils. The following are the anchor profile results (in mils):

Truss 1: 3.8, 3.0, 3.5, 2.6 (grinder wheel repair), 3.3 3.5, 3.8, 3.0, 3.3, 3.0, 3.5

3 gallons of Corothane I Galvapac 1k Zinc Primer reduced with Sherwin Williams Reducer #15 7% by weight by volume (384oz/30oz, 10% weight by volume recommended by Sherwin Williams); primer applied with airless sprayer. QA and QV representatives present to follow priming crews to verify no noted holidays or missed areas during priming of T1 (only outward/harborward side primed). Painters preformed independent QC verification of prime coatings with Wet Film Gauge; all of these readings were between 5 to 6 mils; any areas under 4.5 mils (Sherwin Williams recommendation) were re-applied and re-tested with WFT gauge. QA preformed WFT gauge testing on repairs as they were being placed, and found all final results to be within 5 - 6 mils. Priming of all repairs for this trusses concluded 1:30PM; average atmospheric conditions of QA instrumentation (digital psychrometer) revealed coating environment of between 68F - 77F (QC recorded high of 76 F and low of 71 F), with humidity ranging from 39% to 33% within tent (QC recorded high of 44% and low of 40%); high/low thermometers have been activated by KG QC to monitor humidity and temperature of primer cure. Substrate temperature measured 74 F.

Ongoing work, All Pontoons: see above. Night shift is no longer active upon jobsite.

Significant Communications: None.

Non-conforming work / corrective measures noted on this date: None.

Safety-related problems / corrective measures: None.

Traffic control setup / corrective measures: None.

Photos/Videos taken today? ☐ Yes ☒ No File: \_\_\_\_\_

## Inspector's Shift Hours

From: 6:30 AM  
To: 2:00 PM

Doug Brinius

Inspector's Signature

3/15/2015

Date

Scott Thompson

Reviewed By

3-16-15

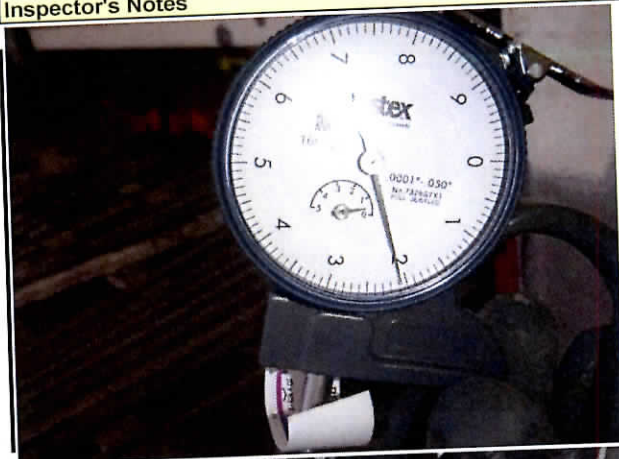
Date

IDR Sheet Sheet 3 of 8	QA Key Personnel Function Structural Inspector	Date Sunday, March 15, 2015
Inspector Doug Brinius		IDR Report # 3/15/2015 DB
Inspector's Notes		



TOP SIX: anchor profile of T1 repairs

IDR Sheet	QA Key Personnel Function	Date
Sheet 4 of 8	Structural Inspector	Sunday, March 15, 2015
Inspector Doug Brinius	IDR Report # 3/15/2015 DB	
Inspector's Notes		



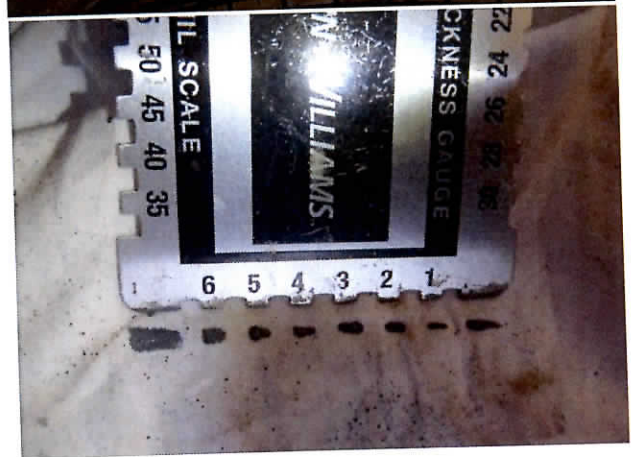
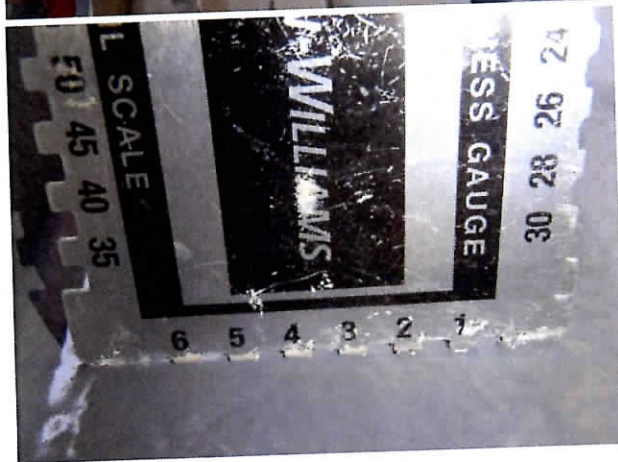
TOP SIX: wet film thickness testing, priming repairs of T1, atmospheric conditions, anchor profile of T1 repairs

IDR Sheet Sheet 5 of 8	QA Key Personnel Function Structural Inspector	Date Sunday, March 15, 2015
Inspector Doug Brinius		IDR Report # 3/15/2015 DB
Inspector's Notes Continued		



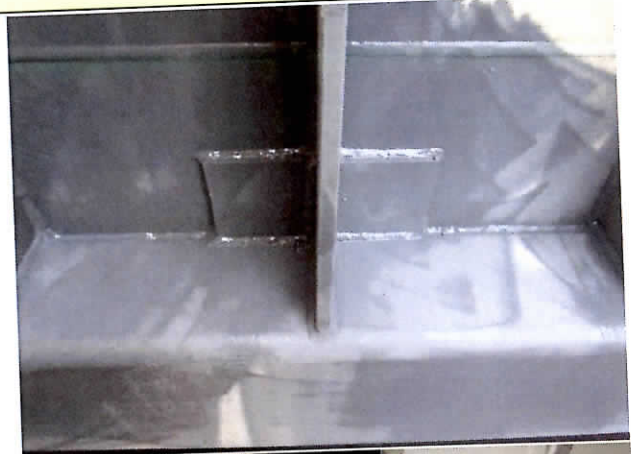
TOP SIX: wet film thickness testing, priming repairs of T1, atmospheric conditions

IDR Sheet Sheet 6 of 8	QA Key Personnel Function Structural Inspector	Date Sunday, March 15, 2015
Inspector Doug Brinius		IDR Report # 3/15/2015 DB
Inspector's Notes Continued		



TOP SIX: wet film thickness testing, priming repairs of T1, gap noted in tent 2.

IDR Sheet Sheet 7 of 8	QA Key Personnel Function Structural Inspector	Date Sunday, March 15, 2015
Inspector Doug Brinius		IDR Report # 3/15/2015 DB
Inspector's Notes Continued		



TOP SIX: atmospheric conditions for T1, wet film thickness testing, priming SS brackets for T1.

IDR Sheet	QA Key Personnel Function	Date
Sheet 8 of 8	Structural Inspector	Sunday, March 15, 2015
Inspector	IDR Report #	
Doug Brinius	3/15/2015 DB	
Inspector's Notes Continued		



TOP SIX: atmospheric conditions for T1, priming SS brackets for T1.

Tuesday, March 17, 2015

IDR/FDR Sheet 1 of 7	QA Key Personnel Function Quality Testing Supervisor/ Structural Inspector	
Weather AM See Attached Weather Report PM See Attached Weather Report		
Inspector Doug Brinius	IDR Report # 3/17/2015 DB	Project # 7826
Subcontractor or Agent	Approved	Subcontractor's Representative/Title
K-G Construction Managers	Yes	Aaron Byron, Dustin Donahoo
K-G General Superintendents	Yes	Joaquin Medina, Ben Jones
K-G Quality Manager	Yes	Scott Thompson
Long Painting	Yes	Dave Bartlett

Witness Point, Basin Gate Coating:

Long painting has applied top coat of Dura-Plate 235 upon all areas receiving intermediate coat on 3/16/15 on trusses 2 and 3, and continued abrasive blasting operations for T1.

QA and QV representatives present to verify intermediate coatings upon repairs in trusses 2 and 3, which had cured for 12 hours at an average of 70 F and 34% humidity; QA preformed dry film thickness testing with Extech CG204 coating thickness tester. The lowest DFT read was 5.22 mils, the highest being 10.66 mils, with an average reading of 9.58 mils for T3 and 8.23 mils for T2, taken over the course of 40 test locations (20 tests per truss) at trusses 2 and 3. QA/QV followed crews to verify no additional noted holidays or missed areas during application of top coat. Dura-Plate 235 Multi-Purpose Epoxy (Lot A: VM0783ZA 00501 MDF ASF/ Lot B: VM0454CG 00092 HAE LFS 440), allowed 15 minutes of sweat-in-time at 73 F, reduced with R7K104 Reducer at 10% weight by volume (12oz/128oz); Dura-Plate mixed and reduced by gallon. Dura-Plate applied via airless sprayer. Painters preformed independent QC verification of prime coatings with wet film gauge; all of these readings were between 8 to 12 mils. QA preformed WFT gauge testing on repairs as they were being placed, and found all final results to be within 8 - 12 mils. Top coatings of all noted repairs for trusses 2 and 3 concluded 5:30PM; average atmospheric conditions of QA instrumentation (digital psychrometer) revealed coating environment of between 75F - 80F (QC recorded high of 82 F and low of 68 F), with humidity ranging from 26% to 40% within tent (QC recorded high of 46% and low of 32%); high/low thermometers have been activated by KG QC to monitor humidity and temperature of primer cure. Substrate temperature measured 75 F.

GATE REPAIRS

Ongoing work, All Pontoons: see above. Night shift is no longer active upon jobsite.

Significant Communications: None.

Non-conforming work / corrective measures noted on this date: None.

Safety-related problems /corrective measures : None.

Traffic control setup / corrective measures: None.

Photos/Videos taken today?

☐ Yes☒ No

File: \_\_\_\_\_

Inspector's Shift Hours

From: 7:00 AM

To: 6:00 PM

Doug Brinius

Inspector's Signature

3/17/2015

Date

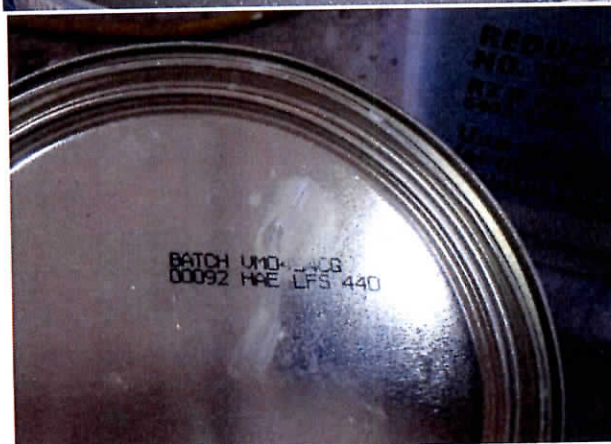
Scott Thompson

Reviewed By

3-18-15

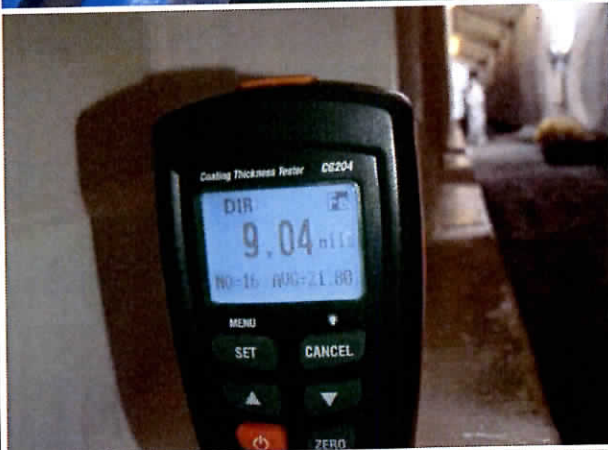
Date

IDR Sheet Sheet 3 of 7	QA Key Personnel Function Structural Inspector	Date Tuesday, March 17, 2015
Inspector Doug Brinius		IDR Report # 3/17/2015 DB
Inspector's Notes		



TOP SIX: DFT readings for Dura-Plate T2 and T3 intermediate coats, Dura-plate batches and reducer used

IDR Sheet	QA Key Personnel Function	Date
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Inspector Doug Brinius	IDR Report # 3/17/2015 DB	
Inspector's Notes		



TOP FOUR: DFT readings for Dura-Plate T2 and T3 intermediate coat  
BOTTOM TWO: Conditions for top coat for Dura-Plate T2 and T3 top coat

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Inspector Doug Brinius	IDR Report # 3/17/2015 DB	
Inspector's Notes Continued		



TOP SIX: DFT readings for Dura-Plate T2 and T3 intermediate coat and top coat of Dura-Plate

IDR Sheet

Sheet 6 of 7

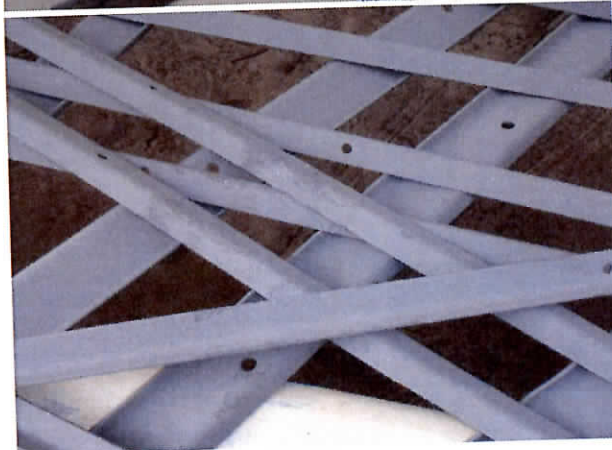
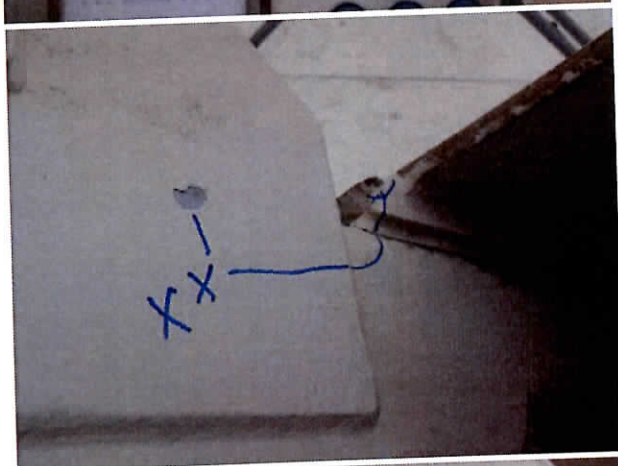
QA Key Personnel Function  
Structural Inspector

Date

Tuesday, March 17, 2015

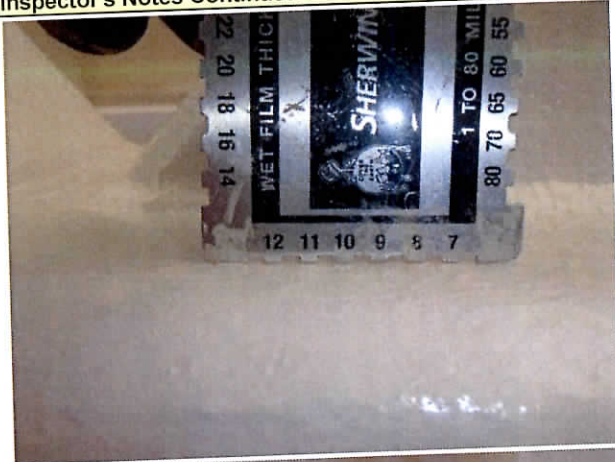
Inspector  
Doug BriniusIDR Report #  
3/17/2015 DB

Inspector's Notes Continued



TOP SIX: Atmospheric conditions for T2 and T3 top coats, anchor profile, areas of concern of T2 and T3

IDR Sheet Sheet 7 of 7	QA Key Personnel Function Structural Inspector	Date Tuesday, March 17, 2015
Inspector Doug Brinius		IDR Report # 3/17/2015 DB
Inspector's Notes Continued		



TOP FOUR: Atmospheric conditions for T2 and T3 top coats, wet film thickness testing

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Weather AM See Attached Weather Report		PM See Attached Weather Report	
Inspector Doug Brinius		IDR Report # 3/18/2015 DB	Project # 7826
Subcontractor or Agent	Approved	Subcontractor's Representative/Title	
K-G Construction Managers	Yes	Aaron Byron, Dustin Donahoo	
K-G General Superintendents	Yes	Joaquin Medina, Ben Jones	
K-G Quality Manager	Yes	Scott Thompson	
Long Painting	Yes	Dave Bartlett	

Witness Point, Basin Gate Coating:

Long painting has applied intermediate coat of Dura-Plate 235 upon noted holidays upon backsides of trusses 2 and 3, and has primed abrasive blasted substrate of T1 with Corothane I Galvapac 1k Zinc primer.

QA and QV representatives present to verify final DFT readings of coatings upon repairs in trusses 2 and 3, which had cured for 12 hours at an average of 72 F and 36% humidity; QA preformed dry film thickness testing with Extech CG204 coating thickness tester. The lowest DFT read was 13.22 mils, the highest being 24.58 mils, with an average reading of 17.60 mils for T3 and 18.73 mils for T2, taken over the course of 80 test locations (40 tests per truss) at trusses 2 and 3. QA/QV followed crews to verify no additional noted holidays or missed areas during application intermediate coating to repairs upon inward/landward side of gate which had been ground down to original primer, but not to bare substrate. Dura-Plate 235 Multi-Purpose Epoxy (Lot A: XM0783ZA MDF ASF/ Lot B: VM0454CG 00092 HAE LFS 440), non-reduced. Dura-Plate applied 3/8" roller. Painters preformed independent QC verification of prime coatings with wet film gauge; all of these readings were between 8 to 12 mils. QA preformed WFT gauge testing on repairs as they were being placed, and found all final results to be within 8 - 12 mils. Coating for missed repairs for trusses 2 and 3 concluded 3:30PM; average atmospheric conditions of QA instrumentation (digital psychrometer) revealed coating environment of between 72F - 84F (QC recorded high of 82 F and low of 68 F), with humidity ranging from 26% to 36% within tent (QC recorded high of 40% and low of 26%); high/low thermometers have been activated by KG QC to monitor humidity and temperature of primer cure. Substrate temperature measured 73 F.

After abrasive blasting operations finished on truss 1, it was blown with compressed air and wiped with Methyl Ethel Keytone (overlap cleaning into old coating system by at least 2" from repair prior to coating application). Inspection of anchor profile preformed by QC Dave Bartlett and the undersigned, as witnessed by WSDOT representative. Testex Press-O-Film strips (X-coarse) read with spring micrometer used in areas of abrasive blasting repair and grinder wheel spot repairs, recorded in mils; Sherman Williams has recommended a minimum anchor profile of 2 mils. 20 tests preformed to find average anchor profile of 3.5mils; all repairs achieved a minimum profile of at least 2 mils.

9 gallons of Corothane I Galvapac 1k Zinc Primer (XM2204VB, sublots 00491,00448 and 00445) reduced with Sherwin Williams Reducer #15 10% by weight by volume (384oz/38oz, 10% weight by volume recommended by Sherwin Williams); primer applied with 3 airless sprayers. QA and QV representatives present to follow priming crews to verify no noted holidays or missed areas during priming of T1 (both inward and outward faces). Painters preformed independent QC verification of prime coatings with Wet Film Gauge; all of these readings were between 5 to 6 mils; any areas under 4.5 mils (Sherwin Williams recommendation) were re-applied and re-tested with WFT gauge.

Continued on Page 3:

Photos/Videos taken today? ☐ Yes ☒ No File: \_\_\_\_\_

## Inspector's Shift Hours

From: 7:00 AM  
To: 6:00 PM

Doug Brinius

Inspector's Signature

3/18/2015

Date

Scott Thompson

Reviewed By

3/19/15

Date

GATE  
REPAIRS

IDR Sheet Sheet 3 of 11	QA Key Personnel Function Structural Inspector	Date Wednesday, March 18, 2015
Inspector Doug Brinius		IDR Report # 3/18/2015 DB
Inspector's Notes		
<p><i>Continued:</i></p> <p>QA performed WFT gauge testing on repairs as they were being placed on T1 and found all final results to be within 5 - 6 mils. Priming of all repairs for this trusses concluded 6:00PM; average atmospheric conditions of QA instrumentation (digital psychrometer) revealed coating environment of between 73F - 84F (QC recorded high of 83 F and low of 71 F), with humidity ranging from 44% to 31% within tent (QC recorded high of 46% and low of 32%); high/low thermometers have been activated by KG QC to monitor humidity and temperature of primer cure. Substrate temperature measured 77 F.</p> <p><i>Ongoing work, All Pontoons:</i> see above. Night shift is no longer active upon jobsite.</p> <p><i>Significant Communications:</i> None.</p> <p><i>Non-conforming work / corrective measures noted on this date:</i> None.</p> <p><i>Safety-related problems /corrective measures :</i> None.</p> <p><i>Traffic control setup / corrective measures:</i> None.</p>		

IDR Sheet	QA Key Personnel Function	Date
Sheet 4 of 11	Structural Inspector	Wednesday, March 18, 2015
Inspector	IDR Report #	
Doug Brinius	3/18/2015 DB	
Inspector's Notes		



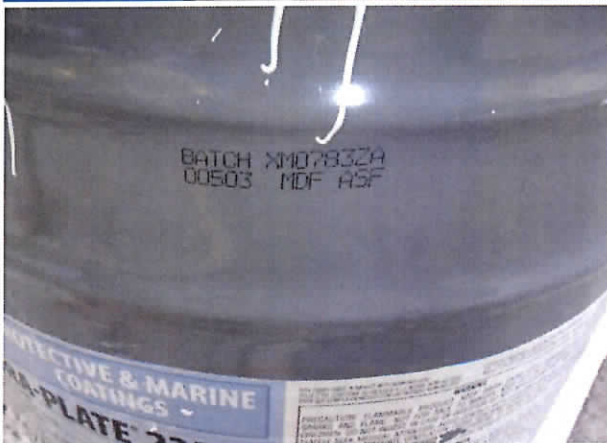
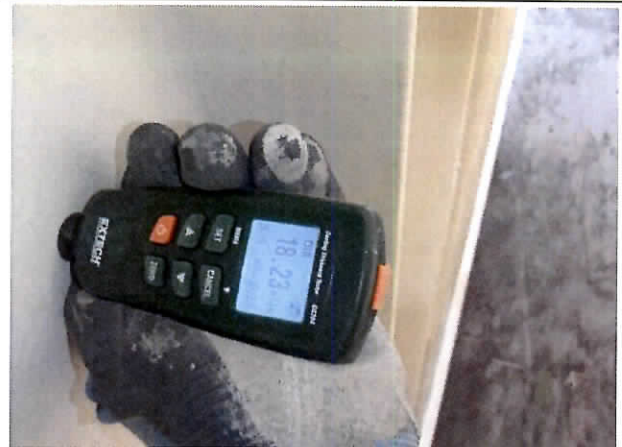
TOP SIX: Final DFT readings for Dura-Plate T2 and T3 top coats

IDR Sheet	QA Key Personnel Function	Date
Sheet 5 of 11	Structural Inspector	Wednesday, March 18, 2015
Inspector	IDR Report #	
Doug Brinius	3/18/2015 DB	
Inspector's Notes Continued		



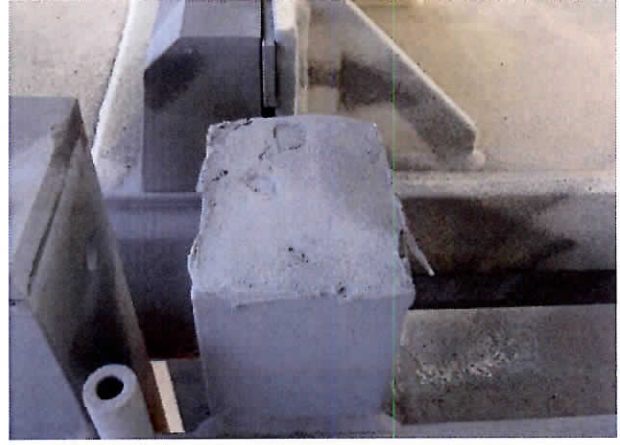
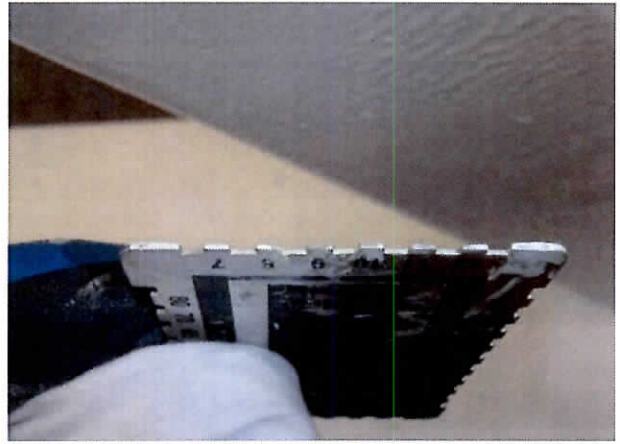
TOP SIX: Final DFT readings for Dura-Plate T2 and T3 top coats

IDR Sheet	QA Key Personnel Function	Date
Sheet 6 of 11	Structural Inspector	Wednesday, March 18, 2015
Inspector Doug Brinius	IDR Report # 3/18/2015 DB	
Inspector's Notes Continued		



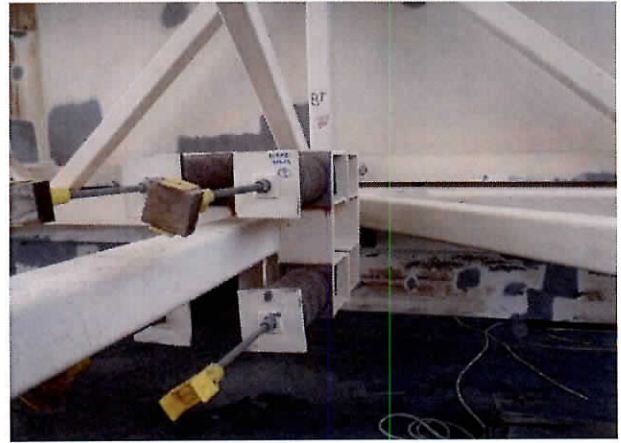
TOP SIX: Final DFT readings, trusses 2 and 3, anchor profile, undercut in weld for zinc anode foot at 4T, SS clips primed

IDR Sheet Sheet 7 of 11	QA Key Personnel Function Structural Inspector	Date Wednesday, March 18, 2015
Inspector Doug Brinius	IDR Report # 3/18/2015 DB	
Inspector's Notes Continued		



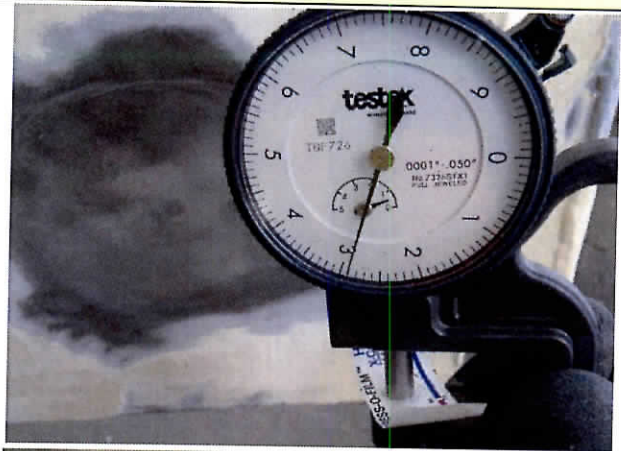
TOP TWO: Final DFT readings, trusses 2 and 3  
BOTTOM FOUR: Inspection of Zinc primer upon T1, WFT of zinc primer, atmospheric conditions and

IDR Sheet	QA Key Personnel Function	Date
Sheet 8 of 11	Structural Inspector	Wednesday, March 18, 2015
Inspector	IDR Report #	
Doug Brinius	3/18/2015 DB	
Inspector's Notes Continued		



TOP SIX: Anchor profile readings, Belleville springs to be disassembled, hole within anode weld, truss 1

IDR Sheet	QA Key Personnel Function	Date
Sheet 9 of 11	Structural Inspector	Wednesday, March 18, 2015
Inspector Doug Brinius	IDR Report # 3/18/2015 DB	
Inspector's Notes Continued		



TOP SIX: Anchor profile readings, truss 1

IDR Sheet	QA Key Personnel Function	Date
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Doug Brinius	3/18/2015 DB	
Inspector's Notes Continued		



TOP THREE: Zinc primers used for truss 1



TOP SIX: Final DFT readings for Dura-Plate T2 and T3 top coats

IDR/FDR Sheet 1 of 18	QA Key Personnel Function Quality Testing Supervisor/ Structural Inspector	Thursday, March 19, 2015
Weather AM See Attached Weather Report PM See Attached Weather Report		
Inspector Doug Brinius	IDR Report # 3/19/2015 DB	Project # 7826
Subcontractor or Agent	Approved	Subcontractor's Representative/Title
K-G Construction Managers	Yes	Aaron Byron, Dustin Donahoo
K-G General Superintendents	Yes	Joaquin Medina, Ben Jones
K-G Quality Manager	Yes	Scott Thompson
Long Painting	Yes	Dave Bartlett

Witness Point, Basin Gate Coating:  
 Long painting has applied final coat of Dura-Plate 235 upon noted holidays upon backsides of trusses 2 and 3, and has completed priming holidays of abrasive blasted substrate of T1 with Corothane I Galvapac 1k Zinc primer.  
 QC and QA conducted DFT readings upon millage of Zinc upon T1; QC and QA preformed 80 tests each upon T1, and determined range thickness range of between 3-6 mils; any areas less than 3 mils received additional coat of Zinc primer. 3 gallons of Corothane I Galvapac 1k Zinc Primer (XM2204VB, sublots 00449) reduced with Sherwin Williams Reducer #15 10% by weight by volume (384oz/38oz, 10% weight by volume recommended by Sherwin Williams) to holidays within T1; primer applied with 3/8" rollers. QA and QV representatives present to follow priming crews to verify no additional noted holidays or missed areas during priming of T1 (both inward and outward faces). Painters preformed independent QC verification of prime coatings with Wet Film Gauge; all of these readings were between 5 to 6 mils; any areas under 4.5 mils (Sherwin Williams recommendation) were re-applied and re-tested with WFT gauge.  
 QC and QA conducted DFT readings upon top coated repairs in T2 and T3; QC and QA preformed 80 tests per truss, and determined thickness range of between 15-20 mils; any areas less than 15 mils identified and marked by QA. It was also noted that within 80 tests taken per truss, approximately 20 of these tests exceeded the maximum millage by an average of four to five mils; additional direction from Sherwin Williams needed for cure curve of additional millage. 0.5 gallons of Dura-Plate 235 (Lot XM0125EB 00021 MOF FBF) applied as top coat to all remaining repairs on trusses 2 and 3; QA preformed WFT gauge testing on repairs and found all final results to be within 8 - 12 mils. Priming of T1 had average atmospheric of 73F - 84F (QC recorded high of 83 F and low of 71 F), with humidity ranging from 44% to 31% within tent (QC recorded high of 46% and low of 32%); tent containing trusses 2 and 3 T1 had average atmospheric of 92F - 86F (QC recorded high of 92 F and low of 84 F), with humidity ranging from 30% to 26% within tent (QC recorded high of 32% and low of 26%) high/low thermometers have been activated by KG QC to monitor humidity and temperature of primer cure. Substrate temperature measured 77 F.

*Ongoing work, All Pontoon:* see above. Night shift is no longer active upon jobsite. Cal Portland batch plant disassembly continued.  
*Significant Communications:* None.  
*Non-conforming work / corrective measures noted on this date:* None.  
*Safety-related problems /corrective measures :* None.  
*Traffic control setup / corrective measures:* None.

GATE  
Repairs

 Photos/Videos taken today? ☐ Yes ☒ No File: \_\_\_\_\_

## Inspector's Shift Hours

 From: 7:00 AM  
 To: 6:00 PM

Doug Brinius

Inspector's Signature

3/19/2015

Date

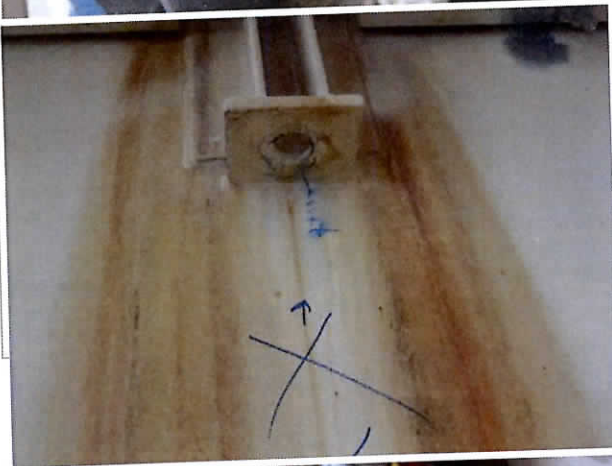
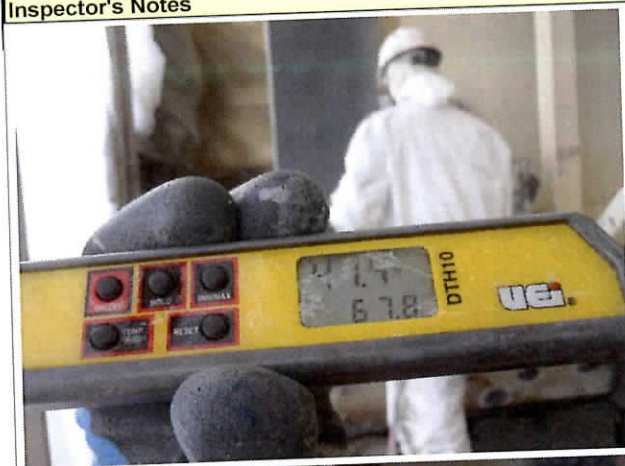
Scott Thompson

Reviewed By

3-20-15

Date

IDR Sheet	QA Key Personnel Function	Date
Sheet 3 of 18	Structural Inspector	Thursday, March 19, 2015
Inspector Doug Brinius	IDR Report # 3/19/2015 DB	
Inspector's Notes		



TOP SIX: Atmospheric conditions and anchor profile testing for application of Zinc primer to T1, primer application

IDR Sheet	QA Key Personnel Function	Date
Sheet 4 of 18	Structural Inspector	Thursday, March 19, 2015
Inspector	IDR Report #	
Doug Brinius	3/19/2015 DB	
Inspector's Notes		



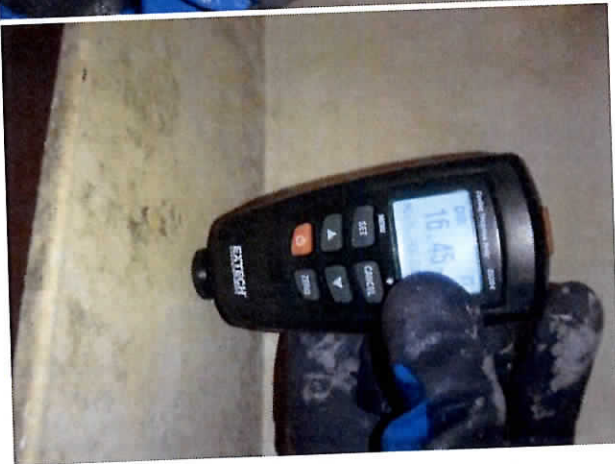
TOP SIX: Final DFT readings for Dura-Plate T2 and T3 top coats, grinding SS clips of old coatings, zinc primer on T1 and independent QV DFT verification.

IDR Sheet	QA Key Personnel Function	Date
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Inspector	IDR Report #	
Doug Brinius	3/19/2015 DB	
Inspector's Notes Continued		



TOP SIX: Final DFT readings, trusses 2 and 3

IDR Sheet Sheet 6 of 18	QA Key Personnel Function Structural Inspector	Date Thursday, March 19, 2015
Inspector Doug Brinius		IDR Report # 3/19/2015 DB
Inspector's Notes Continued		



TOP SIX: Final DFT readings, trusses 2 and 3

IDR Sheet

Sheet 7 of 18

QA Key Personnel Function

Structural Inspector

Date

Thursday, March 19, 2015

Inspector

Doug Brinius

IDR Report #

3/19/2015 DB

Inspector's Notes Continued



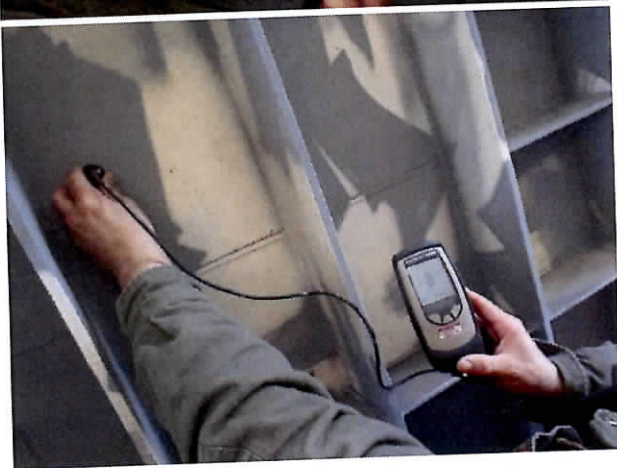
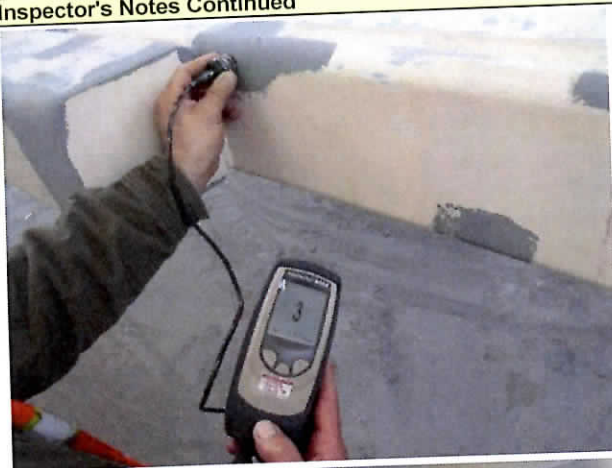
TOP SIX: Final DFT readings, trusses 2 and 3, with noted areas requiring second coat (top two)

IDR Sheet	QA Key Personnel Function	Date
Sheet 8 of 18	Structural Inspector	Thursday, March 19, 2015
Inspector Doug Brinius	IDR Report # 3/19/2015 DB	
Inspector's Notes Continued		



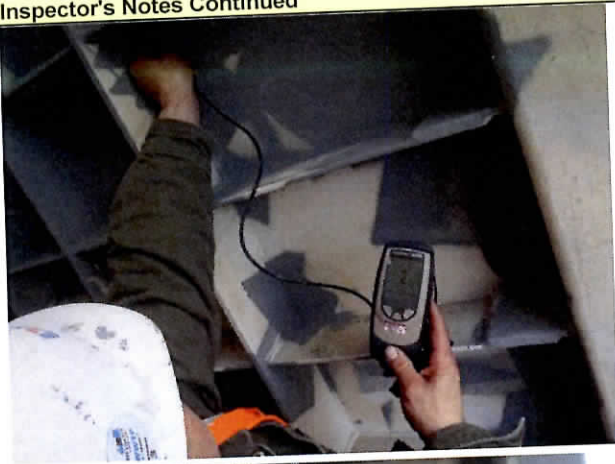
TOP SIX: DFT readings for Zinc primer of T1

IDR Sheet	QA Key Personnel Function	Date
Sheet 9 of 18	Structural Inspector	Thursday, March 19, 2015
Inspector Doug Brinius	IDR Report # 3/19/2015 DB	
Inspector's Notes Continued		



TOP SIX: DFT readings for Zinc primer of T1

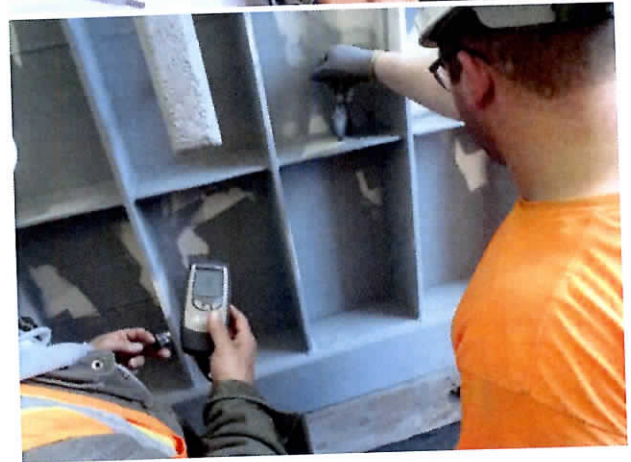
IDR Sheet	QA Key Personnel Function	Date
Sheet 10 of 18	Structural Inspector	Thursday, March 19, 2015
Inspector Doug Brinius	IDR Report # 3/19/2015 DB	
Inspector's Notes Continued		



TOP SIX: DFT readings for Zinc primer of T1



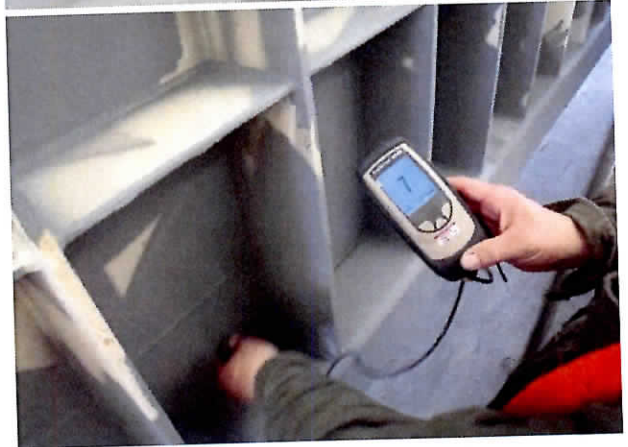
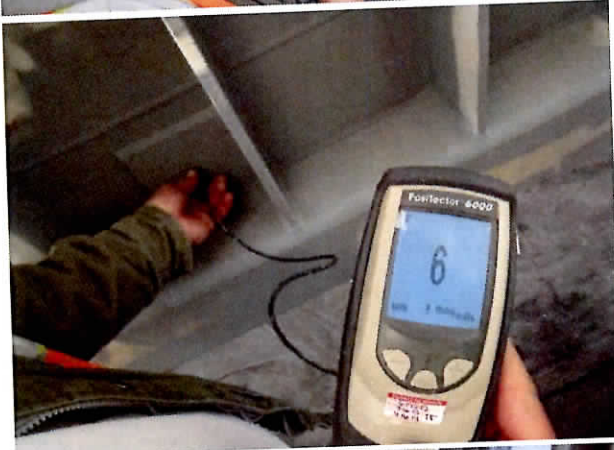
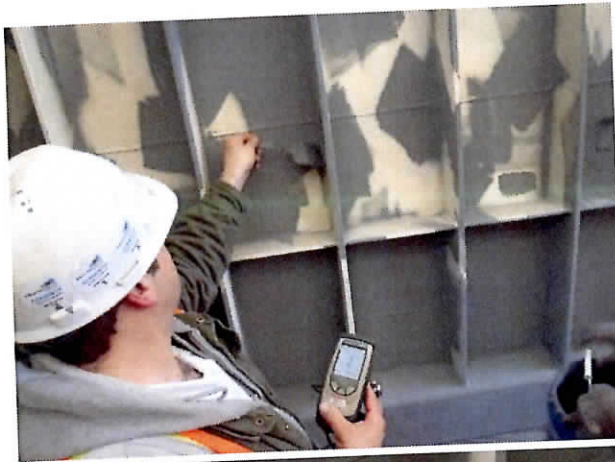
TOP SIX: DFT readings for Zinc primer of T1



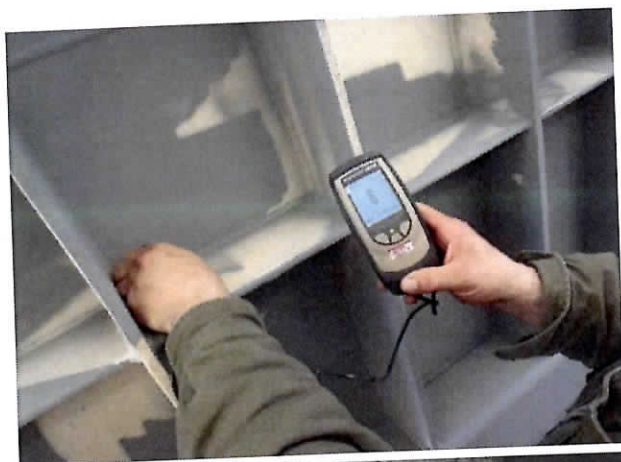
TOP SIX: DFT readings for Zinc primer of T1



TOP SIX: DFT readings for Zinc primer of T1



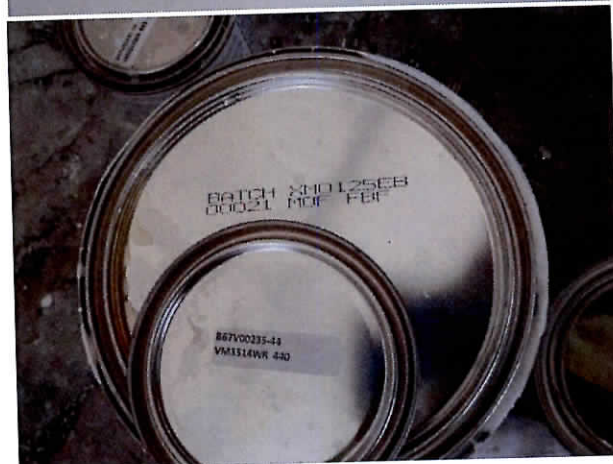
TOP SIX: DFT readings for Zinc primer of T1



TOP SIX: DFT readings for Zinc primer of T1 (QC tests to left, QA tests to right)



TOP SIX: DFT readings for Zinc primer of T1



TOP SIX: DFT readings for Zinc primer of T1, Dura-plate 235 used for T2 and T3 touch ups



TOP FIVE: Primer defects to be fixed on T1, atmospheric conditions in tent housing T2 and T3 (middle two), atmospheric conditions in tent housing T1

IDR/FDR Sheet 1 of 6	QA Key Personnel Function Quality Testing Supervisor/ Structural Inspector	Friday, March 20, 2015
Weather AM See Attached Weather Report      PM See Attached Weather Report		
Inspector Doug Brinius	IDR Report # 3/20/2015 DB	Project # 7826
Subcontractor or Agent	Approved	Subcontractor's Representative/Title
K-G Construction Managers	Yes	Aaron Byron, Dustin Donahoo
K-G General Superintendents	Yes	Joaquin Medina, Ben Jones
K-G Quality Manager	Yes	Scott Thompson
Long Painting	Yes	Dave Bartlett

Witness Point, Basin Gate Coating:  
 Long painting has applied intermediate coat of Dura-Plate 235 upon truss 1, and has completed top of Dura-Plate 235 coat on remaining noted holidays trusses 2 and 3.  
 QA conducted independent DFT readings upon millage of Zinc upon T1 (QC and QA had already preformed acceptance Zinc DFT readings on 3/19/15), and verified range thickness range of between 3-6 mils (with notice that some areas have provided readings of up to 8 mils); pencil hardness test for Zinc primer used for truss 1 was determined to have Moh hardness of at least 4, tested when DFT readings within test area were 6 mils or greater, and randomly throughout repairs for quality control purposes; 2H recommended by Sherwin Williams, which was achievable for all noted tests. For all remaining final coat touch ups upon trusses 2 an 3, Dura-Plate 235 (Lot A: XM0125EB 00021 MOF FBF and XM12124CZ 00027 JAS HAE 440, lot B; B6700255 44 (2X) and VM3514WR 440) applied unreduced via 3/8" rollers; intermediate coat of Dura-Plate 235 [Lot A: VM1834CA 00070-00073-00076-0007, lot B: VM1413WX 0682 (5X)] applied upon truss 1. QA and Long QC preformed WFT gauge testing on repairs and found all final results to be within 8 - 12 mils. Areas less than 8 mils in WFT were re-brushed. Trusses re-touched where runs or sags present.  
 Intermediate coating of T1 truss had average atmospheric conditions of 85F - 72F (QC recorded high of 83F and low of 71F), with humidity ranging from 44% to 36% within tent (QC recorded high of 44% and low of 30%). Tent containing trusses 2 and 3 had average atmospheric of 74F/56% humidity at the Northern section of tents, 86F/43% humidity at the middle section and 100F/26% humidity at the Southern section.  
 It has been discussed with KG-QC Josh Norquist that curing schedule, most notably upon trusses 2 and 3 due to the large size of the tent and inherent temperature differentiations within; curing will be conducted upon the coldest portion recorded inside the tent for that respective gate truss, per the attached curing charts as provided by Sherwin Williams. As top coats have been trending towards 11 and 12 WFT, 12 mil line used for modling purposes. Per attached chart, a minimum of 12 days at 102.5F or 7 days at 115F required for curing. Curing for Trusses 2 and 3 begin today at 3 PM.

*Ongoing work, All pontoons:* see above. Night shift is no longer active upon jobsite. Cal Portland batch plant disassembly continued.  
*Significant Communications:* None.  
*Non-conforming work / corrective measures noted on this date:* None.  
*Safety-related problems /corrective measures :* None.  
*Traffic control setup / corrective measures:* None.  
*Gate Cure Schedule:* TRUSS 2/3: 0 days cure. TRUSS 1: 0 days cure.

 Photos/Videos taken today? ☐ Yes ☒ No File: \_\_\_\_\_

## Inspector's Shift Hours

 From: 7:00 AM  
 To: 6:00 PM

Doug Brinius

Inspector's Signature

3/20/2015

Date

Scott Thompson

Reviewed By

3-23-15

Date

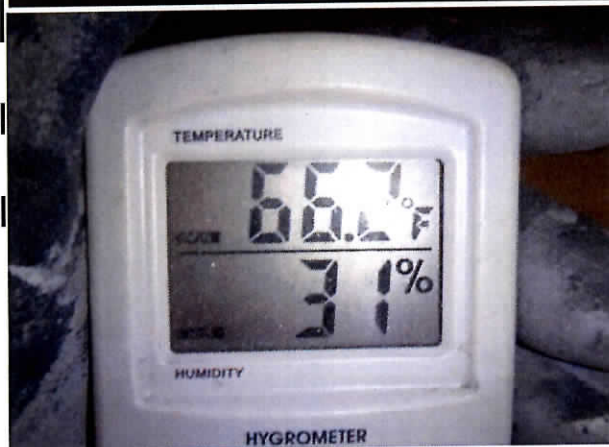
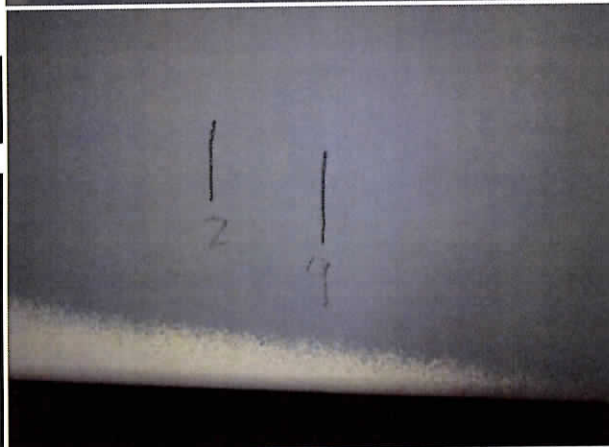
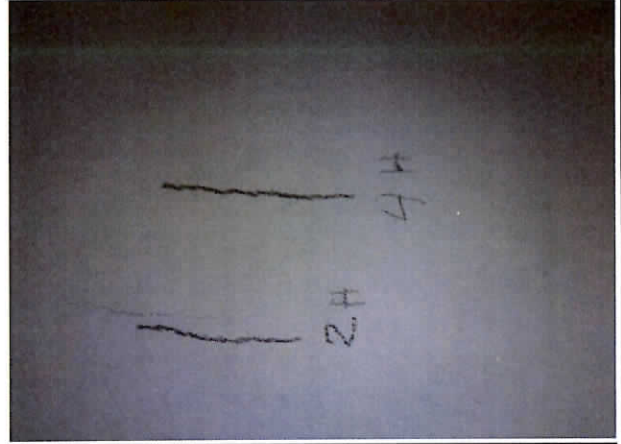
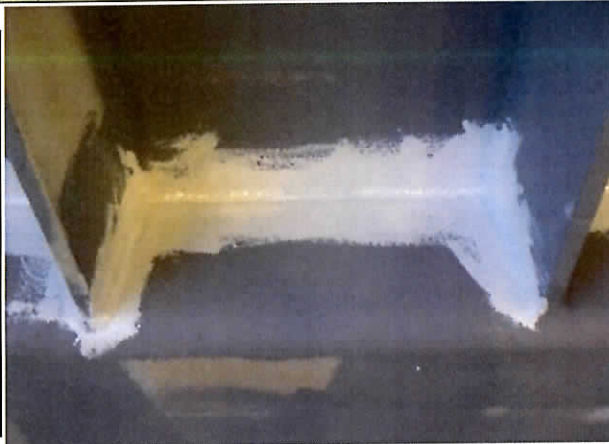
6 Mils  
Repairs

IDR Sheet Sheet 3 of 6	QA Key Personnel Function Structural Inspector	Date Friday, March 20, 2015
Inspector Doug Brinius		IDR Report # 3/20/2015 DB
Inspector's Notes		



TOP SIX: Atmospheric conditions for coating T1, DFT and anchor profile testing for application of intermediate coat of Dura-Plate to T1, application

IDR Sheet	QA Key Personnel Function	Date
Sheet 4 of 6	Structural Inspector	Friday, March 20, 2015
Inspector	IDR Report #	
Doug Brinius	3/20/2015 DB	
Inspector's Notes		



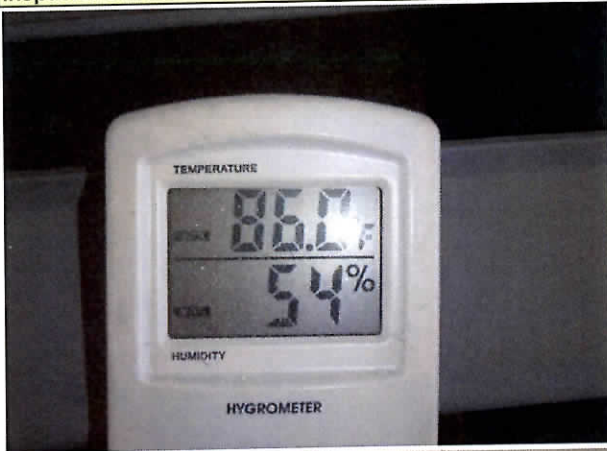
TOP SIX: Stripe coat for T1, pencil hardness and DFT tests upon primer of T1, atmospheric conditions for curing for Trusses 2 and 3

IDR Sheet Sheet 5 of 6	QA Key Personnel Function Structural Inspector	Date Friday, March 20, 2015
Inspector Doug Brinius		IDR Report # 3/20/2015 DB
Inspector's Notes Continued		



TOP SIX: Intermediate coat and WFT testing Truss 1, atmospheric conditions in Trusses 2 and 3

IDR Sheet	QA Key Personnel Function	Date
Sheet 6 of 6	Structural Inspector	Friday, March 20, 2015
Inspector	IDR Report #	
Doug Brinius	3/20/2015 DB	
Inspector's Notes Continued		



TOP SIX: Intermediate coat, WFT testing Truss 1, atmospheric conditions in Trusses 2 and 3

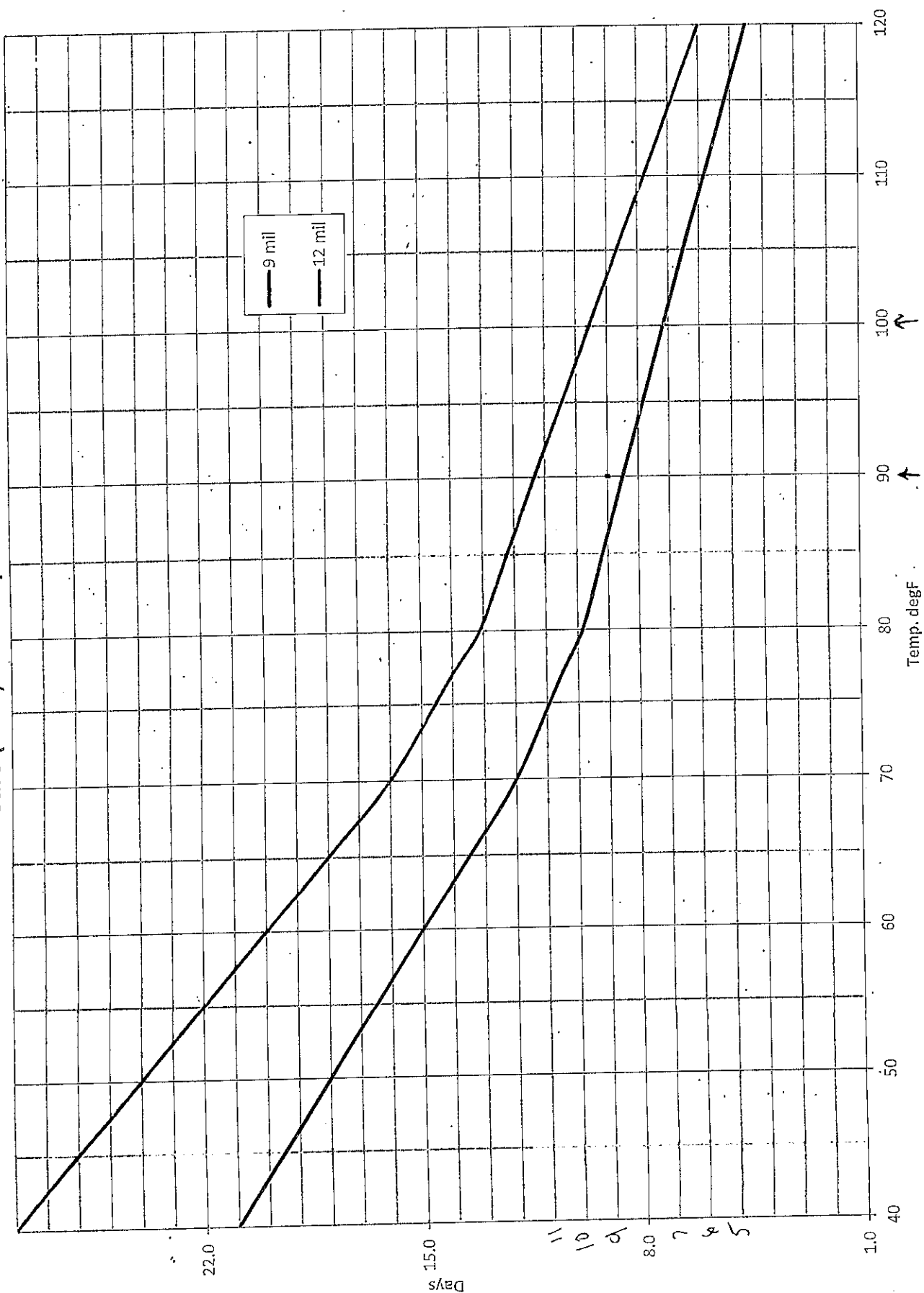
Dura-Plate 235  
Drying Schedule Interpolation (WFT)  
9-12 mil Required

SCHMIDT  
2/23/15

Temp. deg.F	9 mil			12 mil		
	Recoat	Cure		Recoat	Cure	
	Hours	Hours	Days	Hours	Hours	Days
40	18	504	21.0	24	672	28.0
45	16	468	19.5	22	624	26.0
50	14	432	18.0	19	576	24.0
55	13	396	16.5	17	528	22.0
60	11	360	15.0	14	480	20.0
65	9	324	13.5	12	432	18.0
70	7	288	12.0	9	384	16.0
77	5	252	10.5	7	336	14.0
80	5	236	9.8	6	315	13.1
85	4	220	9.2	6	293	12.2
90	4	204	8.5	5	272	11.3
95	3	188	7.8	4	251	10.4
100	3	172	7.2	4	229	9.6
105	2	156	6.5	3	208	8.7
110	2	140	5.8	2	187	7.8
115	1	124	5.2	1	165	6.9
120	1	108	4.5	1	144	6.0

Note: Based on 50% RH

Dura-Plate  
Cure (WFT) 9-12 Required



Saturday, March 21, 2015

IDR/FDR Sheet 1 of 4	QA Key Personnel Function Quality Testing Supervisor/ Structural Inspector	PM See Attached Weather Report
Weather AM See Attached Weather Report	IDR Report # 3/21/2015 DB	Project # 7826
Inspector Doug Brinius	Subcontractor's Representative/Title	
Subcontractor or Agent	Approved	
K-G Construction Managers	Yes	Aaron Byron, Dustin Donahoo
K-G General Superintendents	Yes	Joaquin Medina, Ben Jones
K-G Quality Manager	Yes	Scott Thompson
Long Painting	Yes	Dave Bartlett

Witness Point, Basin Gate Coating:

Long painting has applied top coat of Dura-Plate 235 upon truss 1. QA conducted independent DFT readings upon millage of intermediate coats of Dura-Plate, and verified DFT range of between 6-8 mils (noted reading of 11 mils DFT at 7T lower barrier wall, inward/landward up to mils). All other DFT readings for intermediate coat found to be between 6 to 8 mils. For all remaining final coat upon truss 1, Dura-Plate 235 [Lot A: XM0125EB 00021 MOF FBF and XM12124CZ 00027 JAS HAE 440, lot B: B6700255 44 (2X) and VM3514WR 440]] applied, reduce with R7K104 Reducer at 10% weight by volume (12oz/128oz) and applied via 3 airless sprayers; [Lot A: XM8125EB 00025-00027-00022-00023-00016-00014-00017-00015 lot B: VM1413WX 0682 (8X)] applied upon truss 1. QA and Long QC preformed WFT gauge testing on repairs and found all final results to be within 6 - 10 mils, areas less than 6 mils or greater than 12 mils in WFT were brushed. Trusses re-touched where runs or sags present. Truss 1 painted in average atmospheric conditions of 84F - 78F (QC recorded high of 85F and low of 76F), with humidity ranging from 40% to 33% within tent (QC recorded high of 41% and low of 30%). Painting was concluded for truss 1 at 3:00PM, with an average cure temperature of 95F/28% humidity upon leaving.

*Ongoing work, All Pontoons:* see above. Night shift is no longer active upon jobsite. Cal Portland batch plant disassembly continued.

*Significant Communications:* None.

*Non-conforming work / corrective measures noted on this date:* None.

*Safety-related problems / corrective measures:* None.

*Traffic control setup / corrective measures:* None.

*Gate Cure Schedule:* TRUSS 2/3: 1 day(s) cure, coldest area noted: 89.1 F, warmest area noted: 103.5 F, average tent temperature (of 20 readings): 99.6 F. TRUSS 1: 0 days cure.

Photos/Videos taken today? ☐ Yes ☒ No File: \_\_\_\_\_

Inspector's Shift Hours

From: 7:00 AM

To: 3:30 PM

Doug Brinius

Inspector's Signature

3/21/2015

Date

Scott Thompson

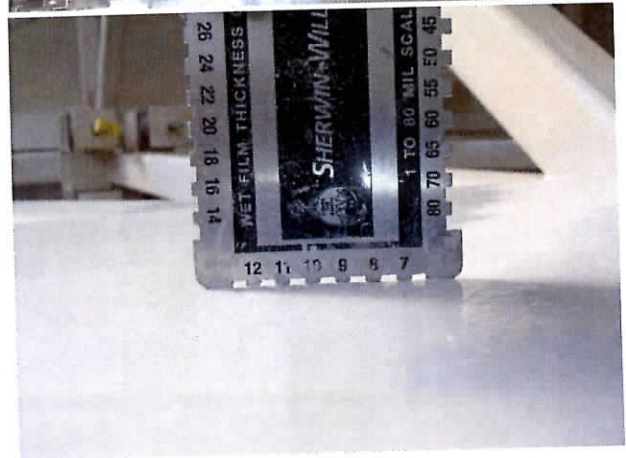
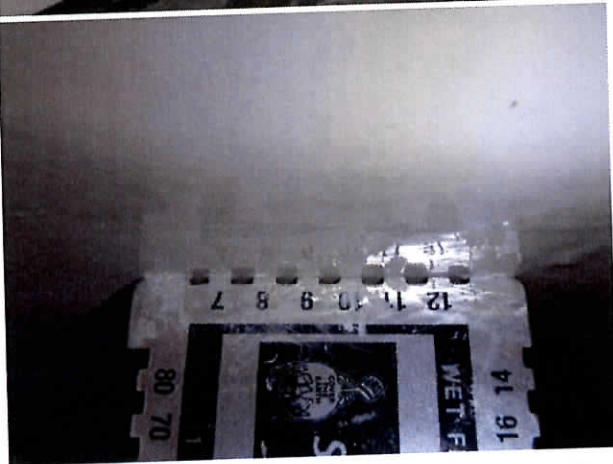
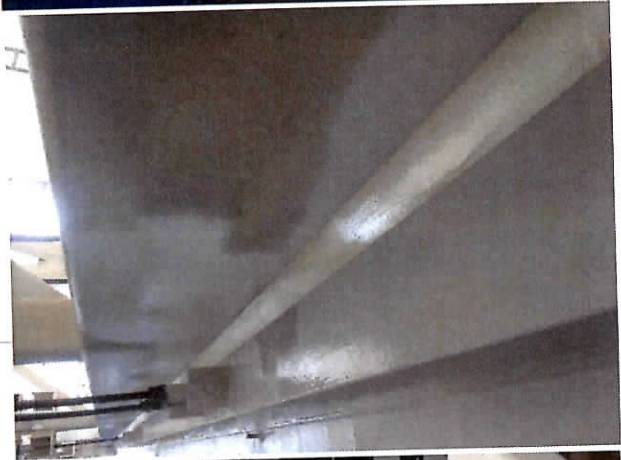
Reviewed By

3-25-15

Date

GATE  
Repairs

IDR Sheet	QA Key Personnel Function	Date
Sheet 3 of 4	Structural Inspector	Saturday, March 21, 2015
Inspector	IDR Report #	
Doug Brinius	3/21/2015 DB	
Inspector's Notes		



TOP SIX: Top coat of Dura-plate 235, WFT readings

IDR Sheet		QA Key Personnel Function	Date
Sheet	4 of 4	Structural Inspector	Saturday, March 21, 2015
Inspector		IDR Report #	
Doug Brinius		3/21/2015 DB	
Inspector's Notes			



TOP SIX: Top coat of Dura-plate 235, WFT reading, curing conditions after 3:00PM

Monday, March 23, 2015

IDR/FDR Sheet 1 of 17	QA Key Personnel Function Quality Testing Supervisor/ Structural Inspector	
Weather AM See Attached Weather Report PM See Attached Weather Report		
Inspector Doug Brinius	IDR Report # 3/23/2015 DB	Project # 7826
Subcontractor or Agent	Approved	Subcontractor's Representative/Title
K-G Construction Managers	Yes	Aaron Byron, Dustin Donahoo
K-G General Superintendents	Yes	Joaquin Medina, Ben Jones
K-G Quality Manager	Yes	Scott Thompson
Long Painting	Yes	Dave Bartlett

Witness Point, Basin Gate Coating:

The undersigned was present along with Long Painting QC and WSDOT representative to preform pinhole detection upon trusses 1, 2 and 3 and DFT readings upon T1. Trusses were inspected by the undersigned using Pipeline Inspection Company's Spy 670 Holiday Detector, set to 80K range. The entirety of all repairs preformed for all trusses, both on outward/inward, inspected for holidays. QC followed behind to apply single coat of Dura-plate 235 to all noted pinholes after affected surfaces were abraded with sandpaper. QV followed, using digital psychrometer to record ambient curing temperatures and humidity; typical recordings listed and included within attached photographs. Average temperature for tent with trusses 2 and 3 at 96 F/26% humidity, average temperature for tent with truss 1 at 102 F/28% humidity. DFT readings taken upon T1; top coat DFT found to be between 6-10 mils. QC Positector confirmed overall coating system thickness, including Zinc primer; found that T1 coating system was between 15-20 mils after touch-up repairs. As per conversation within QC/QV/QA groups, T1's cure schedule has started 2:00PM on this date.

GATE  
Repairs

Ongoing work, All Pontoons: see above. Night shift is no longer active upon jobsite. Cal Portland batch plant disassembly continued.

Significant Communications: See attached letter from Sherwin Williams for cure time clarification.

Non-conforming work / corrective measures noted on this date: None.

Safety-related problems /corrective measures : None.

Traffic control setup / corrective measures: None.

Gate Cure Schedule: TRUSS 2/3: 3 day(s) cure, coldest area noted: 89.1 F, warmest area noted: 103.5 F, average tent temperature (of 20 readings): 99.6 F. TRUSS 1: 0 days cure.

Photos/Videos taken today?

☒ Yes☐ No

File: \_\_\_\_\_

Inspector's Shift Hours

From: 7:00 AM

To: 3:30 PM

Doug Brinius

Inspector's Signature

3/23/2015

Date

Scott Thompson

Reviewed By

3/25/15

Date

IDR Sheet Sheet 3 of 17	QA Key Personnel Function Structural Inspector	Date Monday, March 23, 2015
Inspector Doug Brinius	IDR Report # 3/23/2015 DB	
Inspector's Notes		



TOP SIX: Truss 2/3 holiday testing, T2/T3 tent temperature readings

IDR Sheet	QA Key Personnel Function	Date
Sheet 4 of 17	Structural Inspector	Monday, March 23, 2015
Inspector Doug Brinius	IDR Report # 3/23/2015 DB	
Inspector's Notes		



TOP SIX: Truss 2/3 holiday testing, T2/T3 tent temperature readings

IDR Sheet Sheet 5 of 17	QA Key Personnel Function Structural Inspector	Date Monday, March 23, 2015
Inspector Doug Brinius	IDR Report # 3/23/2015 DB	
Inspector's Notes Continued		



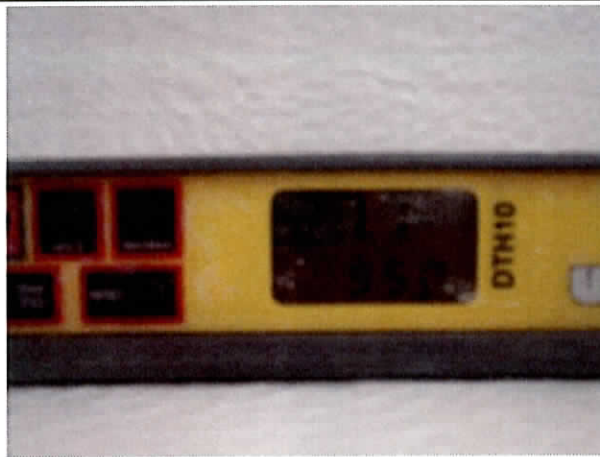
TOP SIX: Truss 2/3 holiday testing, T2/T3 tent temperature readings

IDR Sheet		QA Key Personnel Function		Date
Sheet	6 of 17	Structural Inspector		Monday, March 23, 2015
Inspector		IDR Report #		
Doug Brinius		3/23/2015 DB		
Inspector's Notes Continued				



TOP SIX: Truss 2/3 holiday testing, T2/T3 tent temperature readings

IDR Sheet		QA Key Personnel Function		Date
Sheet	7 of 17	Structural Inspector		Monday, March 23, 2015
Inspector		IDR Report #		
Doug Brinius		3/23/2015 DB		
Inspector's Notes Continued				



TOP SIX: Truss 2/3 holiday testing, T2/T3 tent temperature readings

IDR Sheet		QA Key Personnel Function		Date
Sheet	8 of 17	Structural Inspector		Monday, March 23, 2015
Inspector		IDR Report #		
Doug Brinius		3/23/2015 DB		
Inspector's Notes Continued				



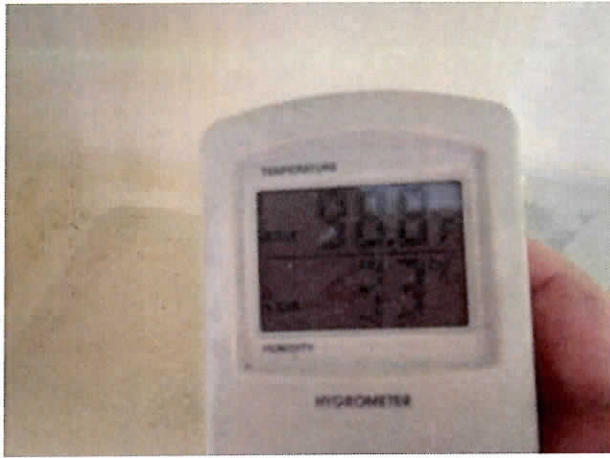
TOP SIX: Truss 2/3 holiday testing, T2/T3 tent temperature readings

IDR Sheet		QA Key Personnel Function		Date	
Sheet	9	of	17	Structural Inspector	Monday, March 23, 2015
Inspector			IDR Report #		
Doug Brinius			3/23/2015 DB		
Inspector's Notes Continued					



TOP SIX: Truss 2/3 holiday testing, T2/T3 tent temperature readings

IDR Sheet		QA Key Personnel Function		Date	
Sheet	10	of	17	Structural Inspector	Monday, March 23, 2015
Inspector			IDR Report #		
Doug Brinius			3/23/2015 DB		
Inspector's Notes Continued					



TOP SIX: Truss 2/3 and 1 holiday testing, T1 tent temperature readings



TOP SIX: Truss 1 holiday testing, T1 tent temperature readings



TOP SIX: Truss 1 holiday testing, T1 tent temperature readings



TOP SIX: Truss 1 holiday testing



TOP SIX: Truss 1 DFT readings for top coat Dura-plate 235, holiday testing, T1 tent temperature readings



TOP SIX: Truss 1 DFT readings for top coat Dura-plate 235, holiday testing, T2/T3 tent temperature readings



TOP SIX: Truss 1 DFT readings for top coat Dura-plate 235, holiday testing, T2/T3 tent temperature readings



**TOP FIVE:** Truss 1 DFT readings for top coat Dura-plate 235, holiday testing, T2/T3 tent temperature readings



**SHERWIN-WILLIAMS.**  
Industrial & Marine Coatings

Kevin Borgeson, Protective Coatings Consultant, 2940 6<sup>th</sup> Ave. South, Seattle, WA 98134  
Phone: 206.679.1208 Fax: 206.387.5904 Email: [kborgeson@sherwin-williams.com](mailto:kborgeson@sherwin-williams.com) / [www.sherwin-williams.com](http://www.sherwin-williams.com)

March 25, 2015

Michael Schmidt  
Kiewit Construction

Re: SR520 Pontoon Construction Project – Aberdeen; Dura-Plate 235 Cure times

Mr. Schmidt,

In regards to your inquiry, I have confirmed with our technical department that the cure time for the Dura-Plate 235 (with spikes of 9-11 mils dft) will be five days from completion of the final coat. This cure time is based on the environmental conditions you have provided, a temperature average of 100 degrees F and a relative humidity of 25 percent.

The spikes of up to 11 mils dft will not significantly affect the cure time of 5 days. The DP 235 interpolation chart you created does not take into account the nature of the DP 235 phenalkamine curing agent. At the higher temperatures and the lower relative humidity you achieved, the cure time is accelerated more than your chart takes into account.

In regards to the seal replacement, you can begin putting them back on after 84 hours of cure time at the average temperature and relative humidity values provided above.

If you have any questions or need any further information, please let me know.

Respectfully,

Kevin Borgeson  
Coatings Consultant  
The Sherwin-Williams Co.  
Protective and Marine

Wednesday, March 25, 2015

IDR/FDR Sheet 1 of 3	QA Key Personnel Function Quality Testing Supervisor/ Structural Inspector		
Weather AM See Attached Weather Report		PM See Attached Weather Report	
Inspector Doug Brinius	IDR Report # 3/25/2015 DB	Project # 7826	
Subcontractor or Agent		Approved	Subcontractor's Representative/Title
K-G Construction Managers	Yes	Aaron Byron, Dustin Donahoo	
K-G General Superintendents	Yes	Joaquin Medina, Ben Jones	
K-G Quality Manager	Yes	Scott Thompson	
Long Painting	Yes	Dave Bartlett	

Ongoing Work:

Ongoing work, All Pontoons: see above. Night shift is no longer active upon jobsite. Cal Portland batch plant disassembly continued.

Significant Communications: None.

Non-conforming work / corrective measures noted on this date: None.

Safety-related problems /corrective measures : None.

Traffic control setup / corrective measures: None.

Gate Cure Schedule: TRUSS 2/3: 5 day(s) cure, coldest area noted: 82.0 F, warmest area noted: 105.7 F, average tent temperature (of 20 readings): 101.2 F, average humidity 34%. TRUSS 1: 2 days cure, coldest area noted: 97.6 F, warmest area noted: 111.3 F, average tent temperature (of 20 readings): 105.4 F, average humidity 22%.

GATE  
Repair

Photos/Videos taken today? ☒ Yes ☐ No File: \_\_\_\_\_

## Inspector's Shift Hours

From: 7:00 AM  
To: 3:30 PM

Doug Brinius

Inspector's Signature

3/25/2015

Date

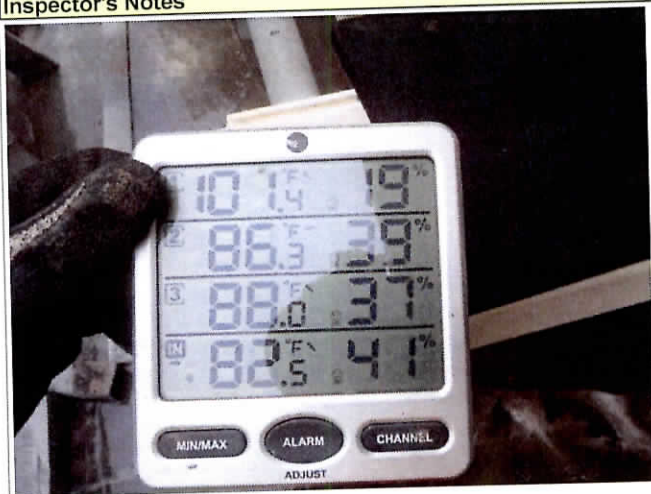
Scott Thompson

Reviewed By

3/27/15

Date

IDR Sheet Sheet 3 of 3	QA Key Personnel Function Structural Inspector	Date Wednesday, March 25, 2015
Inspector Doug Brinius		IDR Report # 3/25/2015 DB
Inspector's Notes		



TOP SIX: Truss 2/3 temp (top left), truss 1 readings

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IDR/FDR Sheet 1 of 6	QA Key Personnel Function Quality Testing Supervisor/ Structural Inspector	Thursday, March 26, 2015
Weather AM See Attached Weather Report      PM See Attached Weather Report		
Inspector Doug Brinius	IDR Report # 3/26/2015 DB	Project # 7826
Subcontractor or Agent	Approved	Subcontractor's Representative/Title
K-G Construction Managers	Yes	Aaron Byron, Dustin Donahoo
K-G General Superintendents	Yes	Joaquin Medina, Ben Jones
K-G Quality Manager	Yes	Scott Thompson
Long Painting	Yes	Dave Bartlett

Ongoing Work:

*Ongoing work, All Pontoons:* Cal Portland batch plant, thermal control barn and testing shack disassembly continued. Ensured oil slick absorption curtain contained no gaps and was functioning properly. Night shift is no longer active upon jobsite.

*Significant Communications:* None.

*Non-conforming work / corrective measures noted on this date:* None.

*Safety-related problems /corrective measures :* None.

*Traffic control setup / corrective measures:* None.

*Gate Cure Schedule:* TRUSS 2/3: 6 day(s) cure, coldest area noted: 83.8 F, warmest area noted: 105.2 F, average tent temperature (of 10 Fluke Gauge readings): 99.1 F, average humidity 30%. TRUSS 1: 3 days cure, coldest area noted: 101.9 F, warmest area noted: 122.8 F, average tent temperature (of 10 Fluke Gauge readings): 108.5 F, average humidity 24%.

Photos/Videos taken today?

☒ Yes☐ No

File: \_\_\_\_\_

Inspector's Shift Hours

From: 7:00 AM

To: 3:30 PM

Doug Brinius

Inspector's Signature

3/26/2015

Date

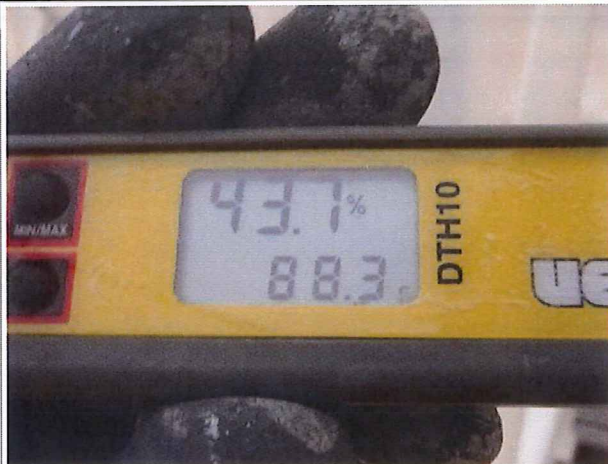
Scott Thompson

Reviewed By

3-28-15

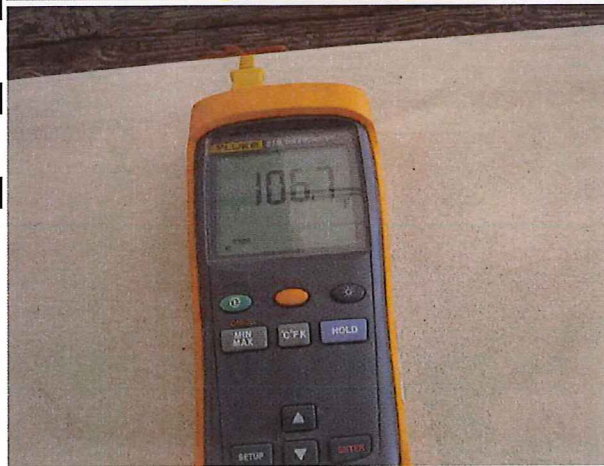
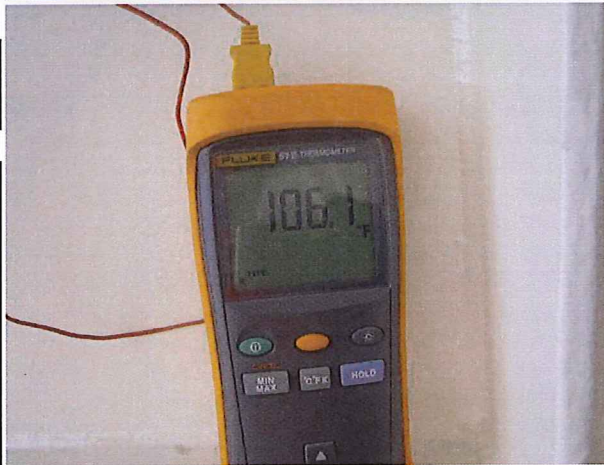
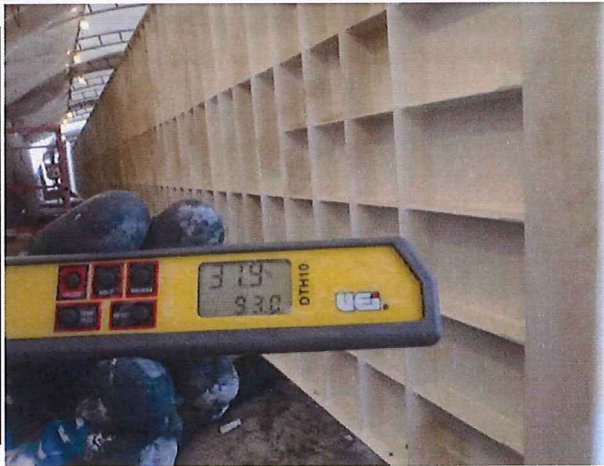
Date

IDR Sheet	QA Key Personnel Function	Date
Sheet 3 of 6	Structural Inspector	Thursday, March 26, 2015
Inspector Doug Brinius	IDR Report # 3/26/2015 DB	
Inspector's Notes		



TOP SIX: Truss 2/3 tent temperature readings

IDR Sheet		QA Key Personnel Function	Date
Sheet	4 of 6	Structural Inspector	Thursday, March 26, 2015
Inspector		IDR Report #	
Doug Brinius		3/26/2015 DB	
Inspector's Notes			



TOP TWO: Truss T2/T3 tent temperature readings  
BOTTOM FOUR: Truss T1 tent temperature readings

Friday, March 27, 2015

IDR/FDR Sheet 1 of 13	QA Key Personnel Function Quality Testing Supervisor/ Structural Inspector		Friday, March 27, 2015
Weather AM See Attached Weather Report		PM See Attached Weather Report	
Inspector Doug Brinius	IDR Report # 3/27/2015 DB	Project # 7826	
Subcontractor or Agent		Approved	Subcontractor's Representative/Title
K-G Construction Managers	Yes	Dustin Donahoo	
K-G General Superintendents	Yes	Joaquin Medina, Ben Jones	
K-G Quality Manager	Yes	Scott Thompson	

Ongoing Work, Gate Coating Operations:

The undersigned was present with QV representative Scott Oliver to document hardness testing upon gates in order to ensure that gates have reached sufficient cure. Approximately 30 pencil hardness tests performed with H-501 pencil hardness gauge upon truss 1, 2 and 3. Tested areas found to have a hardness of at least H Mol hardness, per Sherwin Williams recommendation. Average hardness found to be 3H Mol hardness for all trusses. The undersigned was present with QV representative Scott Oliver to also document ongoing humidity and temperatures for the gate trusses.

*Ongoing work, All Pontoons:* Cal Portland batch plant, thermal control barn and testing shack disassembly continued. Ensured oil slick absorption curtain contained no gaps and was functioning properly. Night shift is no longer active upon jobsite.

*Significant Communications:* None.

*Non-conforming work / corrective measures noted on this date:* None.

*Safety-related problems /corrective measures :* None.

*Traffic control setup / corrective measures:* None.

*Gate Cure Schedule:* TRUSS 2/3: 7 day(s) cure, coldest area noted: 99.6 F, warmest area noted: 127.0 F, average tent temperature (of 10 Fluke Gauge readings): 100.1 F, average humidity 26%. TRUSS 1: 4 days cure, coldest area noted: 86.1 F, warmest area noted: 109.5 F, average tent temperature (of 10 Fluke Gauge readings): 103.3 F, average humidity 28%.

Photos/Videos taken today?

☒ Yes☐ No

File: \_\_\_\_\_

Inspector's Shift Hours

From: 7:00 AM

To: 3:30 PM

Doug Brinius

Inspector's Signature

3/27/2015

Date

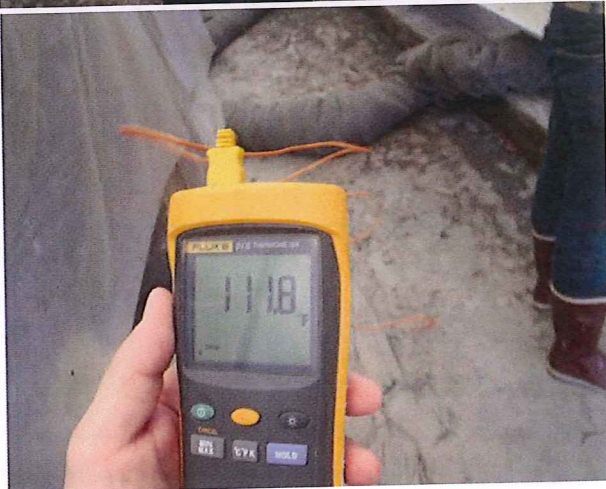
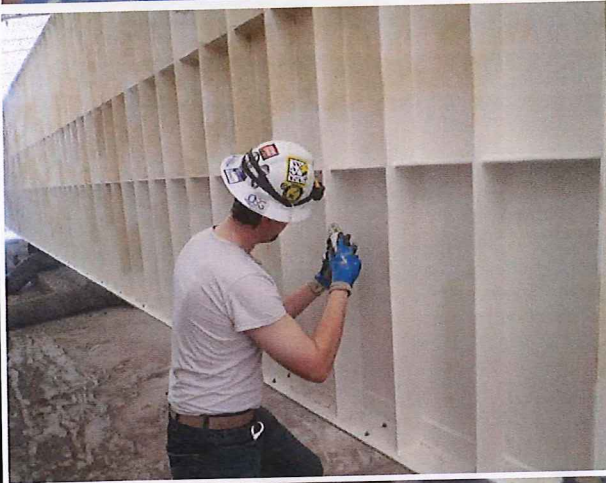
Scott Thompson

Reviewed By

3-30-15

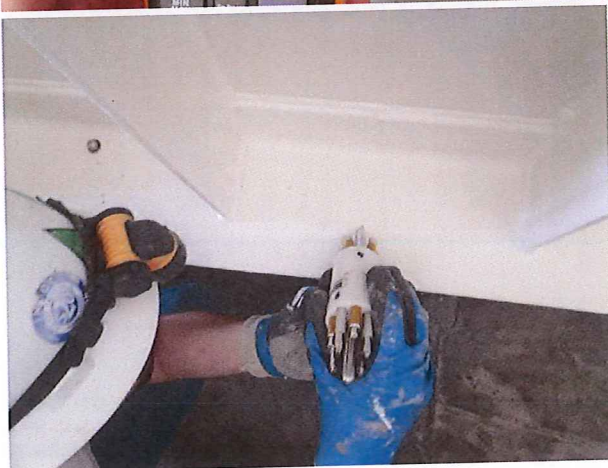
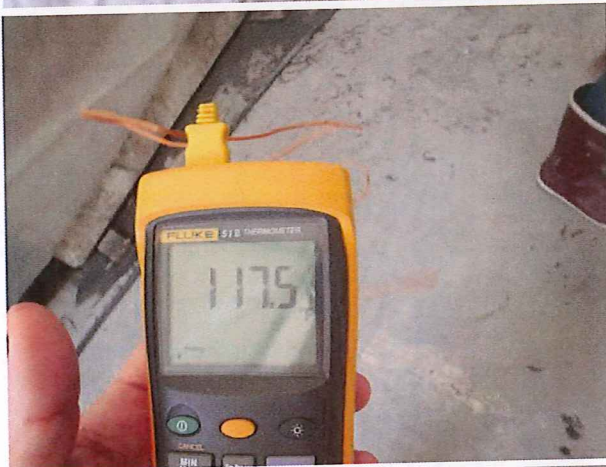
Date

IDR Sheet	QA Key Personnel Function	Date
Sheet 4 of 13	Structural Inspector	Friday, March 27, 2015
Inspector Doug Brinius	IDR Report # 3/27/2015 DB	
Inspector's Notes		



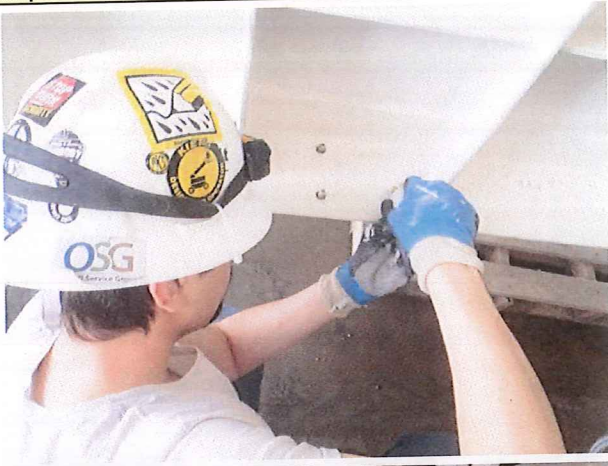
TOP SIX: Trusses 2/3 pencil hardness testing, T2/3 tent temperature readings

IDR Sheet	QA Key Personnel Function	Date
Sheet 5 of 13	Structural Inspector	Friday, March 27, 2015
Inspector Doug Brinius	IDR Report # 3/27/2015 DB	
Inspector's Notes Continued		



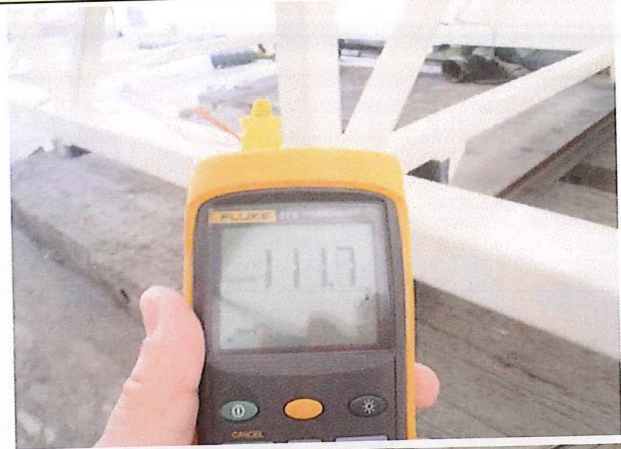
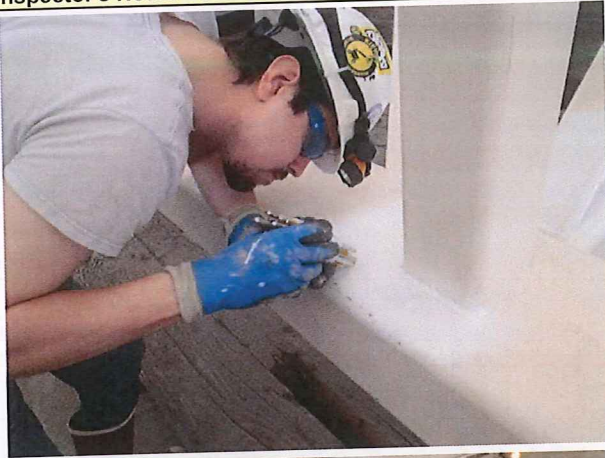
TOP SIX: Trusses 2/3 pencil hardness testing, T2/3 tent temperature readings

IDR Sheet Sheet 6 of 13	QA Key Personnel Function Structural Inspector	Date Friday, March 27, 2015
Inspector Doug Brinius		IDR Report # 3/27/2015 DB
Inspector's Notes Continued		



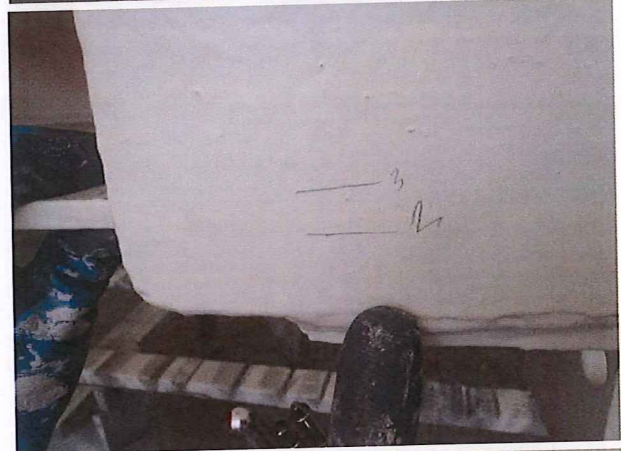
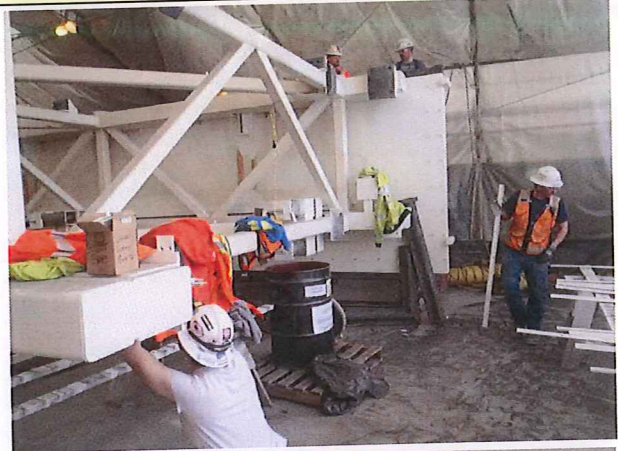
TOP SIX: Trusses 2/3 pencil hardness testing, T2/3 tent temperature readings

IDR Sheet	QA Key Personnel Function	Date
Sheet 7 of 13	Structural Inspector	Friday, March 27, 2015
Inspector Doug Brinius	IDR Report # 3/27/2015 DB	
Inspector's Notes Continued		



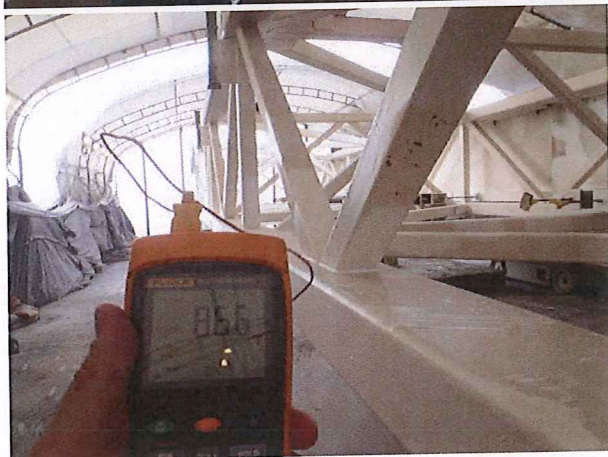
TOP SIX: Trusses 2/3 pencil hardness testing, T2/3 tent temperature readings

IDR Sheet	QA Key Personnel Function	Date
Sheet 8 of 13	Structural Inspector	Friday, March 27, 2015
Inspector Doug Brinius	IDR Report # 3/27/2015 DB	
Inspector's Notes Continued		



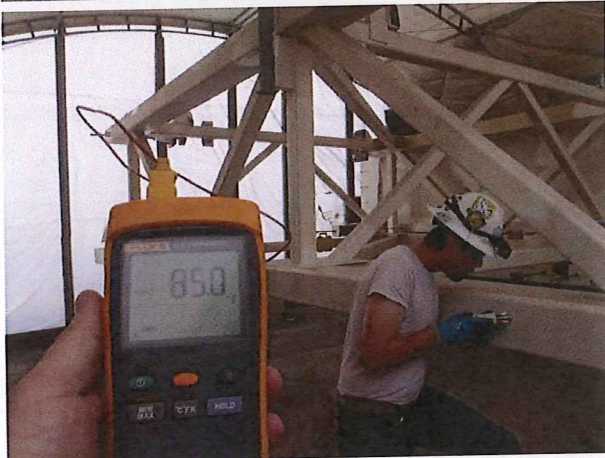
TOP SIX: Trusses 2/3 pencil hardness testing, T2/3 tent temperature readings

IDR Sheet	QA Key Personnel Function			Date
Sheet	9	of	13	Friday, March 27, 2015
Inspector			IDR Report #	
Doug Brinius			3/27/2015 DB	
Inspector's Notes Continued				

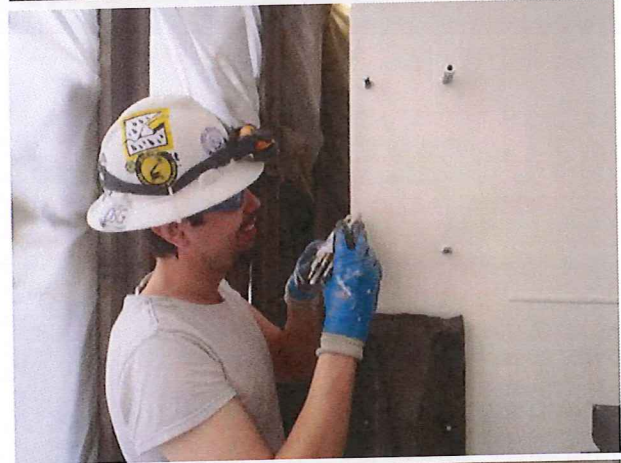


TOP SIX: Trusses 2/3 pencil hardness testing, T2/3 tent temperature readings

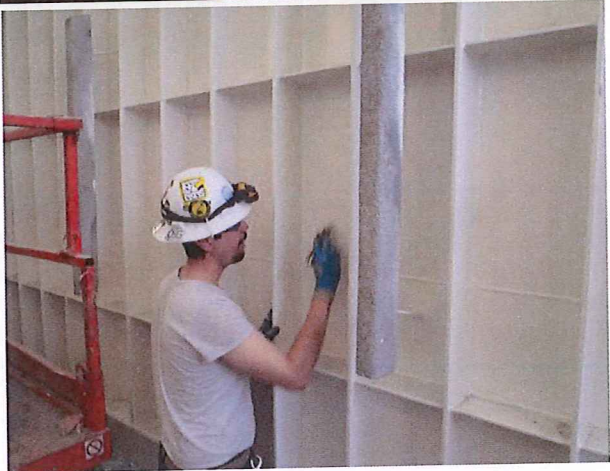
IDR Sheet	QA Key Personnel Function	Date
Sheet 10 of 13	Structural Inspector	Friday, March 27, 2015
Inspector Doug Brinius	IDR Report # 3/27/2015 DB	
Inspector's Notes Continued		



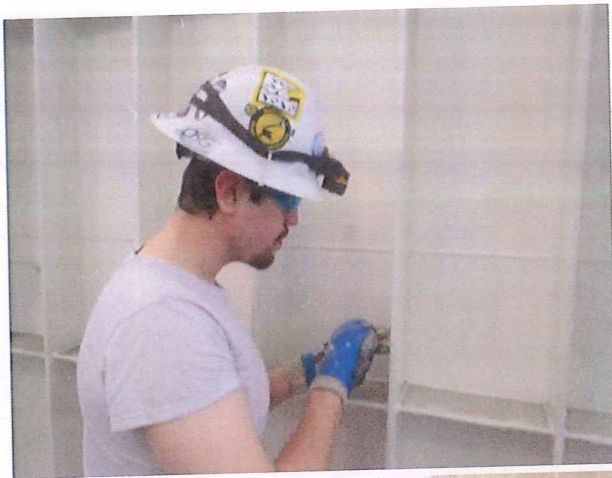
TOP SIX: Trusses 2/3 pencil hardness testing, T2/3 tent temperature readings



TOP SIX: Truss 1 pencil hardness testing, T1 tent temperature readings



TOP SIX: Truss 1 pencil hardness testing, T1 tent temperature readings



TOP FOUR: Truss 1 pencil hardness testing, temperature readings

IDR/FDR Sheet 1 of 9	QA Key Personnel Function Quality Testing Supervisor/ Structural Inspector	Saturday, March 28, 2015
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**Weather**

AM See Attached Weather Report

PM See Attached Weather Report

**Inspector**

IDR Report #

Project #

Doug Brinius

3/28/2015 DB

7826

Subcontractor or Agent	Approved	Subcontractor's Representative/Title
K-G Construction Managers	Yes	Dustin Donahoo
K-G General Superintendents	Yes	Joaquin Medina, Ben Jones
K-G Quality Manager	Yes	Scott Thompson

Ongoing Work, Gate Coating Operations:

The undersigned was present with K-G QC to document the repair of the sheared off 2 existing vertical seal studs at T1, reported to have fractured during tightening of the seal nuts on 3/27/15. Welding and painting systems reviewed and approved by KPFF EOR, as attached to this report. Two studs at T1 gridline ground from truss with angle grinder and 3/8" x 2" stainless steel stud rewelded under supervision and visual inspection of Inspector Perkinson, WABO/ICC CWI of Pacific Testing and Inspection, LLC (see attached welding report).

Repair areas were cleaned with MEK solvent wipe, and Testex Press-O-Film strips (X-coarse) read with spring micrometer used in areas of spot repairs, recorded in mils; Sherman Williams has recommended a minimum anchor profile of 2 mils, tested areas were 2.1 and 2.5 mils. Approximately 5 fluid ounces of Sherwin Williams Fast Clad ER Epoxy mixed in electric paddle mixer and applied by brush.

K-G QC also disassembled Belleville springs by removing stopping plate and examining disks and central guideshaft for inspection. Upper springs on lines 2 and 9 (per KPFF G04) examined per maintenance specifications within O&M manual. Spring on line 9 was disassembled due to one of the disks facing the wrong way (three disks of the same deflection stacked together). All springs appeared to be in good condition.

Curing operations ended on tent holding trusses 2/3 at 2:00PM, curing operations ended on tent holding truss 1 at 3:00PM; due to T1 truss being fully submerged, KG provided Intellirock readers to document hour by hour readings, which have been provided. Stud repair was kept insulated in separate blanketed tent for 15 hours in tent averaging 104 F, the time necessary for cure to service. See attached Intellirock data.

*Ongoing work, All Pontoons:* Tent disassembly.

*Significant Communications:* None.

*Non-conforming work / corrective measures noted on this date:* None.

*Safety-related problems / corrective measures:* None.

*Traffic control setup / corrective measures:* None.

*Gate Cure Schedule:* See attached data sheets.

Photos/Videos taken today?

☒ X Yes☐ No

File: \_\_\_\_\_

Inspector's Shift Hours

From: 7:00 AM

To: 3:30 PM

Doug Brinius

Inspector's Signature

3/28/2015

Date

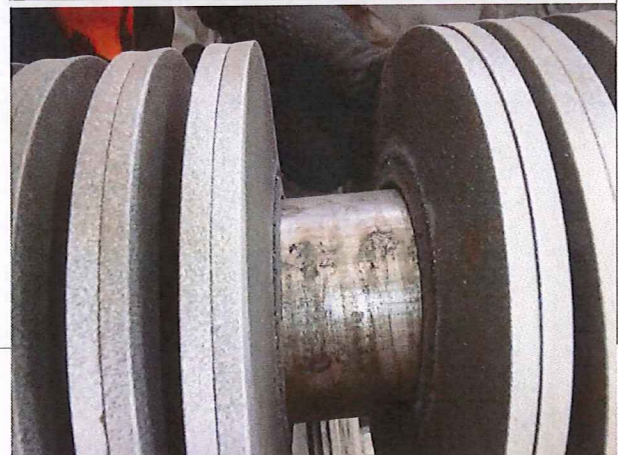
Scott Thompson

Reviewed By

3-31-15

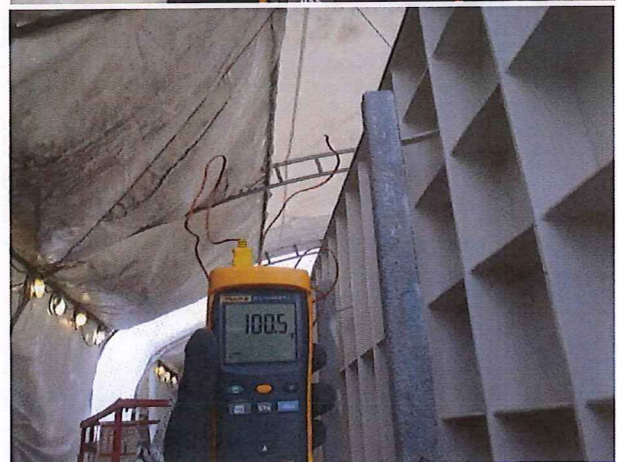
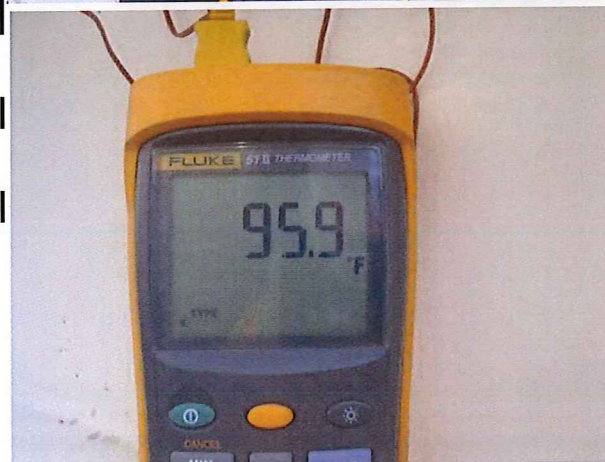
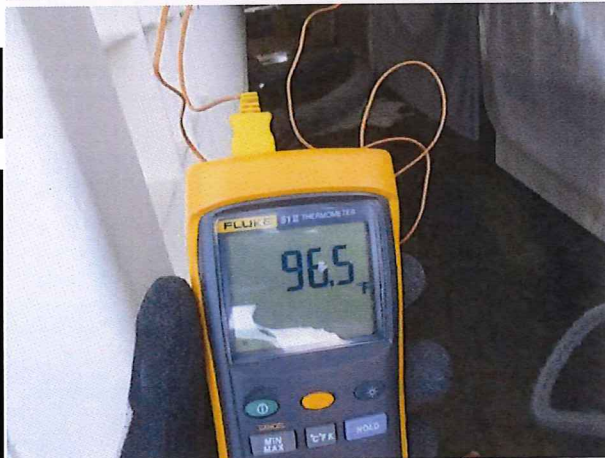
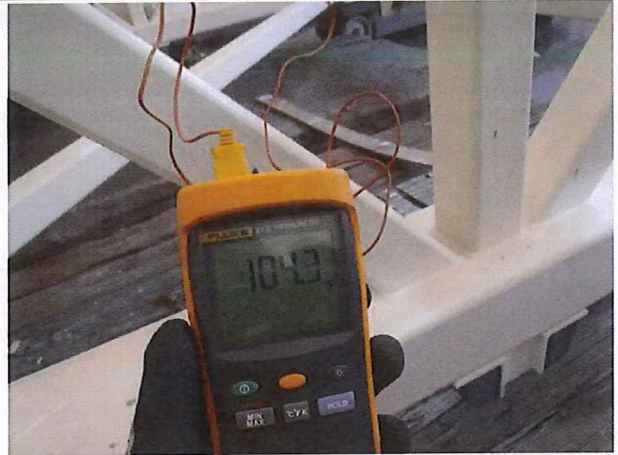
Date

IDR Sheet Sheet 3 of 9	QA Key Personnel Function Structural Inspector	Date Saturday, March 28, 2015
Inspector Doug Brinius		IDR Report # 3/28/2015 DB
Inspector's Notes		



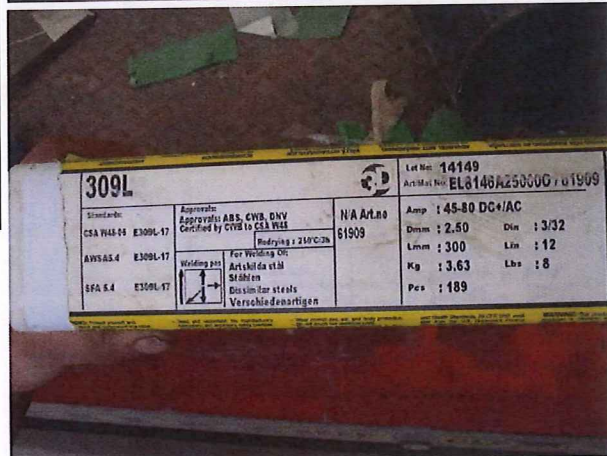
TOP SIX: Removal of batch plant, inspection of Belleville springs

IDR Sheet	QA Key Personnel Function	Date
Sheet 4 of 9	Structural Inspector	Saturday, March 28, 2015
Inspector Doug Brinius	IDR Report # 3/28/2015 DB	
Inspector's Notes		



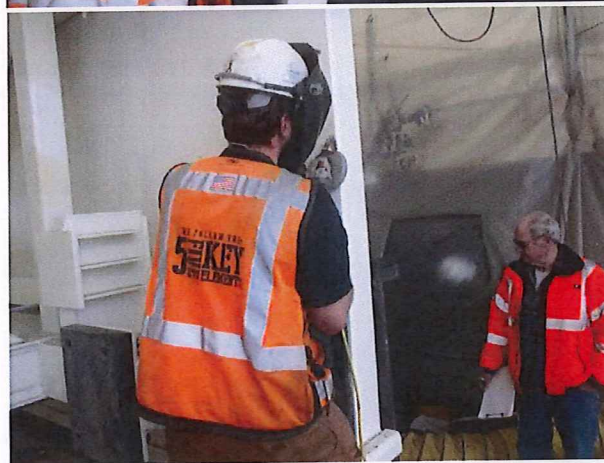
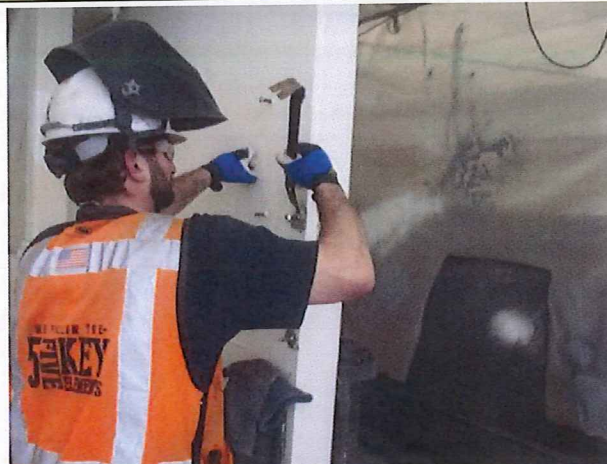
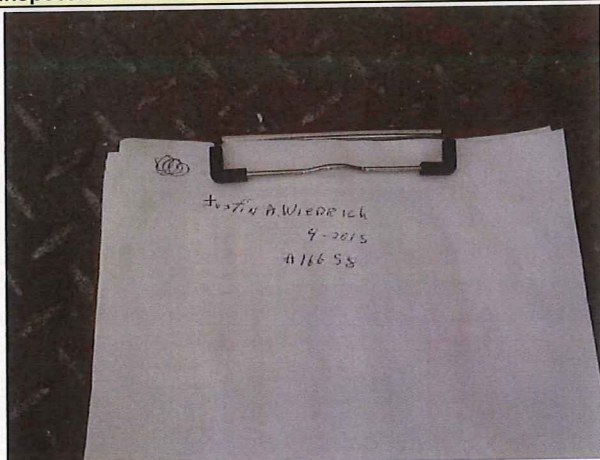
TOP SIX: T1/T2/3 tent temperature readings

IDR Sheet	QA Key Personnel Function	Date
Sheet 5 of 9	Structural Inspector	Saturday, March 28, 2015
Inspector Doug Brinius	IDR Report # 3/28/2015 DB	
Inspector's Notes Continued		



TOP SIX: Truss 1 stud repairs, welding stainless steel studs and weld inspection

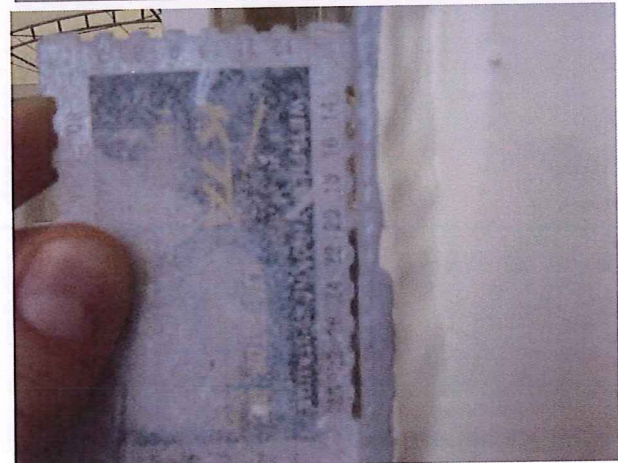
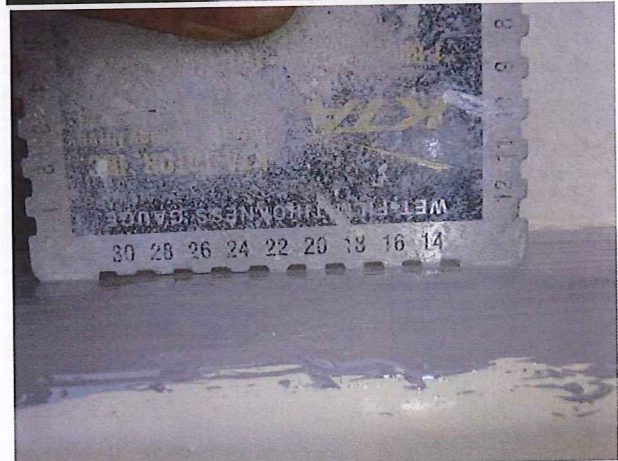
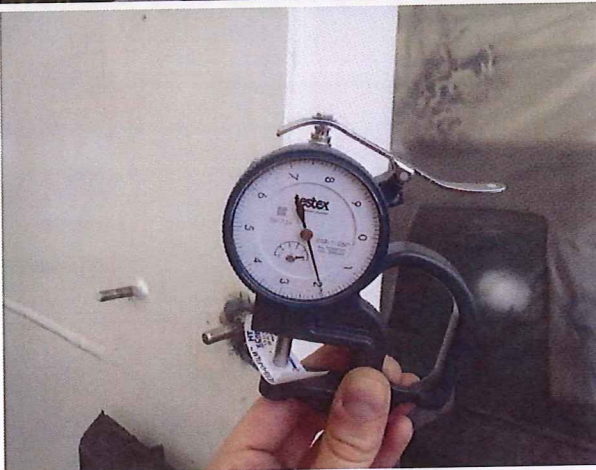
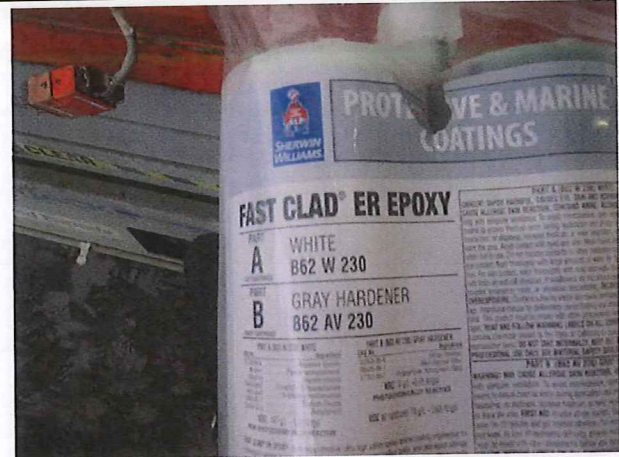
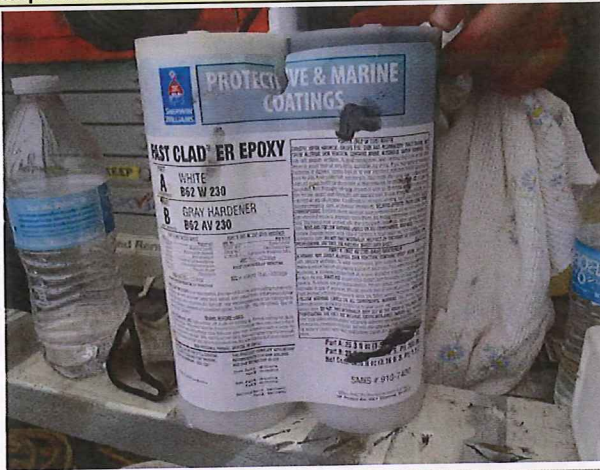
IDR Sheet	QA Key Personnel Function	Date
Sheet 6 of 9	Structural Inspector	Saturday, March 28, 2015
Inspector Doug Brinius	IDR Report # 3/28/2015 DB	
Inspector's Notes Continued		



TOP SIX: Truss 1 stud repairs, welding stainless steel studs and weld inspection

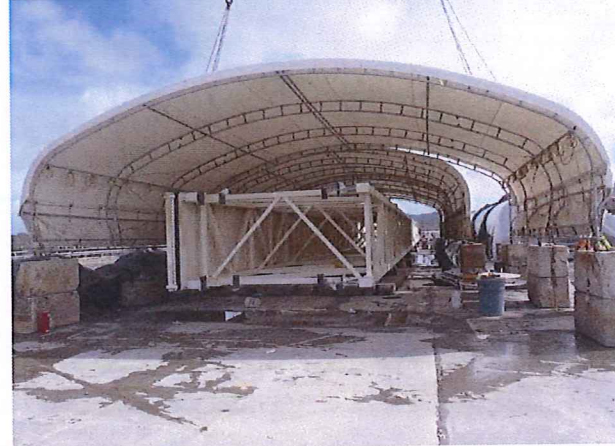
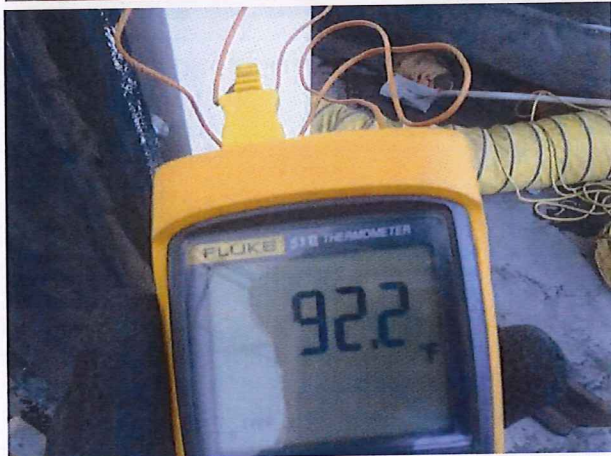
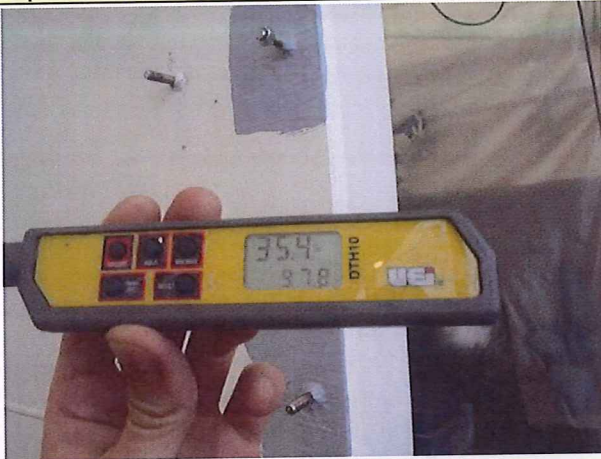
IDR Sheet  
Sheet 7 of 9QA Key Personnel Function  
Structural InspectorDate  
Saturday, March 28, 2015Inspector  
Doug BriniusIDR Report #  
3/28/2015 DB

Inspector's Notes Continued



TOP SIX: Truss 1 stud repairs, coating atmosphere, Fast Clad, anchor profile, wet film thickness

IDR Sheet	QA Key Personnel Function			Date
Sheet 8 of 9	Structural Inspector			Saturday, March 28, 2015
Inspector	IDR Report #			
Doug Brinius	3/28/2015 DB			
Inspector's Notes Continued				



TOP FOUR: Truss 1 stud repairs, coating atmosphere, DFT readings

BOTTOM TWO: Truss 2/3 tent removal

IDR Sheet				QA Key Personnel Function		Date	
Sheet	9	of	9	Structural Inspector		Saturday, March 28, 2015	
Inspector				IDR Report #			
Doug Brinius				3/28/2015 DB			
Inspector's Notes Continued							



TOP TWO: Trusses 2/3 and truss 1 main tent removal, 3PM

# Pacific Testing & Inspection LLC

2417 Harrison Avenue, Centralia, WA 98531  
Phone (360) 736-3922 Fax (360) 807-6002

005074

## FIELD REPORT

DATE: 3-28-15 (Sat) Report #  
PROJECT: SR-520 PONTON CUSTOMER: Hiway Const  
LOCATION: Abandon WA ATTENTION:  
PROJECT # ADDRESS:  
PERMIT#

Time: 11 AM Temp: 52 ° Weather: overcast Inspection Type: Weld

On Site @ Peter H. Hill construction yard  
to perform special inspection per Request for  
Weld of 3/8" x 2" Stainless Steel Stud for  
Gate & Bus #1 Grid #1, Remove & Replace  
Junk Studs Due to Broken and Breached, All  
Welding Done was as Required

Welder Justin A. Wiedrich  
Exd 4-2015  
ID # 16658

NOTE: Justin A. Not Cert'd for Stainless, However,  
this Inspector did observe weld performed  
by Justin & all were acceptable

### Pacific Testing & Inspection LLC

Arthur T. Perkinson  
Certified Special Inspector  
WABO/ICC

2417 Harrison Avenue  
Centralia, WA 98531

(360) 736-3922  
Fax (360) 807-6002  
Cell (360) 508-6769

To the best of my knowledge, the above WAS / WAS NOT performed in accordance with the approved plans, specifications, and regulatory requirements.

INSPECTOR: Arthur Perkinson REVIEWED BY: \_\_\_\_\_



SHERWIN-WILLIAMS  
2940 SIXTH AVENUE SOUTH  
SEATTLE, WA 98134 2104  
(206) 622-3896

03/28/2015

Michael Schmidt  
KIEWIT-GENERAL, A J.V.  
1301 West Heron St.  
Aberdeen, WA 98520

Re: Submittal for SR 520 Pontoon Replacement Aberdeen - Casting Basin Gate

Dear Michael Schmidt:

In regards to your inquiry for a rapid cure coating to touch up the casting basin gate, I recommend the Fast-Clad ER. Included in this package is the Sherwin-Williams Product Data and MSDS for the FC ER.

When applied per Sherwin-Williams recommendations, the Fast Clad ER will provide a system equal to the Dura-Plate 235 for the conditions on this specific project. Cure to immersion service is 24 hours at 77F and a RH of 50%. If you are still using the containment and heat, the return to service is 12 at 100F and a RH of 50%.

Surface prep to near white metal and then apply one coat of the Fast-Clad ER at 18.0-22.0 mils dft. For this application, the Fast-Clad ER is compatible with the DP 235.

Should you require assistance or have any questions or concerns, please contact me at (206) 979-1208 or e-mail me at [swrep6313@sherwin.com](mailto:swrep6313@sherwin.com).

Sincerely,

KEVIN W BORGESON  
Sherwin-Williams  
Sales Representative

	T1 North	T1 South
Logger SN	8317848	8321401
3/23/2015 13:00	109.4	105.8
3/23/2015 14:00	96.8	96.8
3/23/2015 15:00	91.4	87.8
3/23/2015 16:00	96.8	89.6
3/23/2015 17:00	104	95
3/23/2015 18:00	104	96.8
3/23/2015 19:00	107.6	100.4
3/23/2015 20:00	105.8	96.8
3/23/2015 21:00	107.6	96.8
3/23/2015 22:00	105.8	96.8
3/23/2015 23:00	104	96.8
3/24/2015 0:00	104	96.8
3/24/2015 1:00	105.8	96.8
3/24/2015 2:00	105.8	98.6
3/24/2015 3:00	105.8	98.6
3/24/2015 4:00	107.6	98.6
3/24/2015 5:00	109.4	98.6
3/24/2015 6:00	109.4	100.4
3/24/2015 7:00	109.4	98.6
3/24/2015 8:00	104	96.8
3/24/2015 9:00	109.4	109.4
3/24/2015 10:00	113	118.4
3/24/2015 11:00	113	111.2
3/24/2015 12:00	104	104
3/24/2015 13:00	104	105.8
3/24/2015 14:00	102.2	104
3/24/2015 15:00	104	104
3/24/2015 16:00	104	100.4
3/24/2015 17:00	105.8	100.4
3/24/2015 18:00	105.8	100.4
3/24/2015 19:00	111.2	104
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3/25/2015 21:00	114.8	104
3/25/2015 22:00	118.4	105.8
3/25/2015 23:00	118.4	107.6
3/26/2015 0:00	120.2	109.4
3/26/2015 1:00	122	109.4
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3/26/2015 3:00	120.2	109.4
3/26/2015 4:00	120.2	107.6
3/26/2015 5:00	120.2	109.4
3/26/2015 6:00	118.4	107.6
3/26/2015 7:00	118.4	107.6
3/26/2015 8:00	118.4	107.6
3/26/2015 9:00	120.2	109.4
3/26/2015 10:00	122	114.8
3/26/2015 11:00	114.8	114.8
3/26/2015 12:00	116.6	123.8
3/26/2015 13:00	120.2	122

T2/3 North	T2/3 South	T2/3 Mid
8321400	8317870	8317865
104	96.8	104
95	95	102.2
91.4	95	102.2
93.2	93.2	96.8
95	95	96.8
102.2	96.8	98.6
107.6	98.6	102.2
104	93.2	98.6
104	93.2	98.6
104	95	98.6
104	95	98.6
104	95	98.6
104	95	98.6
104	95	98.6
105.8	95	100.4
104	95	98.6
93.2	89.6	89.6
104	96.8	98.6
105.8	98.6	102.2
104	96.8	100.4
98.6	98.6	100.4
98.6	98.6	100.4
98.6	102.2	104
98.6	100.4	104
98.6	100.4	100.4
102.2	98.6	100.4
102.2	95	96.8
105.8	96.8	96.8
113	98.6	102.2
105.8	96.8	100.4
104	95	98.6
102.2	91.4	96.8
100.4	87.8	95
98.6	86	93.2
98.6	86	93.2
100.4	86	93.2
98.6	89.6	93.2
98.6	86	93.2
98.6	89.6	95
100.4	89.6	95
84.2	87.8	91.4
89.6	87.8	84.2
89.6	89.6	93.2
89.6	89.6	89.6
91.4	91.4	91.4
89.6	86	86
84.2	75.2	78.8
89.6	87.8	95
86	87.8	93.2
87.8	89.6	93.2
89.6	91.4	96.8
95	95	102.2
100.4	98.6	105.8
102.2	100.4	107.6
104	102.2	109.4
104	104	111.2
96.8	89.6	91.4
100.4	84.2	86
98.6	80.6	82.4
95	77	78.8
95	77	78.8
93.2	75.2	75.2
91.4	73.4	75.2
89.6	77	78.8
98.6	91.4	98.6
102.2	98.6	107.6
104	100.4	111.2
109.4	111.2	118.4
111.2	113	122

3/26/2015 14:00	118.4	123.8
3/26/2015 15:00	114.8	118.4
3/26/2015 16:00	111.2	113
3/26/2015 17:00	107.6	109.4
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3/26/2015 20:00	105.8	102.2
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3/26/2015 22:00	107.6	104
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3/27/2015 0:00	109.4	104
3/27/2015 1:00	109.4	104
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3/27/2015 12:00	93.2	93.2
3/27/2015 13:00	93.2	95
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3/27/2015 17:00	100.4	96.8
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3/28/2015 12:00	105.8	107.6
3/28/2015 13:00	102.2	102.2
3/28/2015 14:00	98.6	102.2

114.8	111.2	129.2
123.8	114.8	129.2
120.2	113	123.8
120.2	113	120.2
118.4	107.6	114.8
116.6	104	111.2
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123.8	104	113
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125.6	104	114.8
123.8	102.2	113
123.8	102.2	113
123.8	102.2	113
123.8	100.4	113
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120.2	107.6	118.4
113	104	113
116.6	107.6	118.4
116.6	104	116.6
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89.6	95	95
95	96.8	100.4
89.6	95	96.8
91.4	95	96.8
91.4	96.8	96.8
91.4	93.2	96.8
95	96.8	100.4
96.8	100.4	102.2
100.4	100.4	104
104	102.2	107.6
105.8	105.8	109.4
105.8	109.4	113
104	107.6	109.4
104	107.6	111.2
78.8	73.4	78.8

Average

T1	103.1
----	-------

T2/3	100.6
------	-------

Total Average	101.6 °F
---------------	----------

Required	100 °F
----------	--------

S/N: 8317848  
Job: Gate  
Location:  
Logger Sub 9  
Run State: Run  
Start Date: 3/21/2015 17:06  
Last Downl 3/30/2015 7:00  
Elapsed Tin 205.9  
Data Interv 60  
Number of 206

Current Reading:

Time (hrs)	Temperature (°F)	Maturity (°C-Hrs)
205.9	53.6	8004

Logged Readings (206):

Time(hrs)	Temperature (°F)	Maturity (°C-Hrs)
171	107.6	7120 3/28/2015 20:06
172	105.8	7161 3/28/2015 21:06
173	104	7202 3/28/2015 22:06
174	104	7243 3/28/2015 23:06
175	104	7283 3/29/2015 0:06
176	104	7323 3/29/2015 1:06
177	104	7364 3/29/2015 2:06
178	104	7404 3/29/2015 3:06
179	104	7444 3/29/2015 4:06
180	104	7484 3/29/2015 5:06
181	104	7525 3/29/2015 6:06
182	104	7565 3/29/2015 7:06
183	104	7605 3/29/2015 8:06
184	104	7646 3/29/2015 9:06
185	104	7686 3/29/2015 10:06

104.36 avg

Events(2):

Time (hrs)	Description	Temperature	Maturity (°C-Hrs)
113.08	MAX TEMPERATU	123.8	4960
204.92	MIN TEMPERATU	53.6	7993

Notes(0):

Parameters(1):

Parameter Value	Min	Max
Datum (C)	0	-10 99

Monday, March 30, 2015

IDR/FDR Sheet 1 of 3	QA Key Personnel Function Quality Testing Supervisor/ Structural Inspector		
Weather AM See Attached Weather Report		PM See Attached Weather Report	
Inspector Doug Brinius	IDR Report # 3/30/2015 DB	Project # 7826	
Subcontractor or Agent	Approved	Subcontractor's Representative/Title	
K-G Construction Managers	Yes	Dustin Donahoo	
K-G General Superintendents	Yes	Joaquin Medina, Ben Jones	
K-G Quality Manager	Yes	Scott Thompson	

Ongoing Work, Gate Coating Operations:

The undersigned was present with K-G QC and QV representative present to preform ASTM 54022-93 (1999), assessing the solvent resistance of organic coatings using solvent rub, as per data sheet requirements for Fast Clad ER Epoxy, upon truss 1 repairs of broken studs repaired upon 3/28/15. DFT first preformed on test area, and found to be 20.2 mils. Per Sherwin Williams, clean dry cloth saturated 100% in MEK solvent, rubbed 50 times with moderate hand pressure; DFT tested afterwards and found to be 20.2 mils. Testing preformed 48 hours of initial application.

Based on Sherwin William approved cure times (minimum of 5 days at 100 F on truss 1), cure times acceptable for all trusses and verified correct DFT readings, pencil hardness and solvent wipe testing, QA has found no noted discrepancies preventing placement of gate. Listed in this report are quantities used for the recoating of the gate and copies of updated welding procedures/welders certification cards and welding report for truss 1 repairs.

Truss 1 was placed into water at 4:00PM; truss 2 placed at 4:20PM and truss 3 at 4:50PM.

*Ongoing work, All Pontoons:* Dewatering basin down to 30".  
*Significant Communications:* None.  
*Non-conforming work / corrective measures noted on this date:* None.  
*Safety-related problems /corrective measures :* None.  
*Traffic control setup / corrective measures:* None.

Photos/Videos taken today?

☒ Yes☐ No

File: \_\_\_\_\_

Inspector's Shift Hours

From: 7:00 AM  
To: 3:30 PM

Doug Brinius

Inspector's Signature

3/30/2015  
Date

Scott Thompson

Reviewed By

3-31-15  
Date

[illegible]

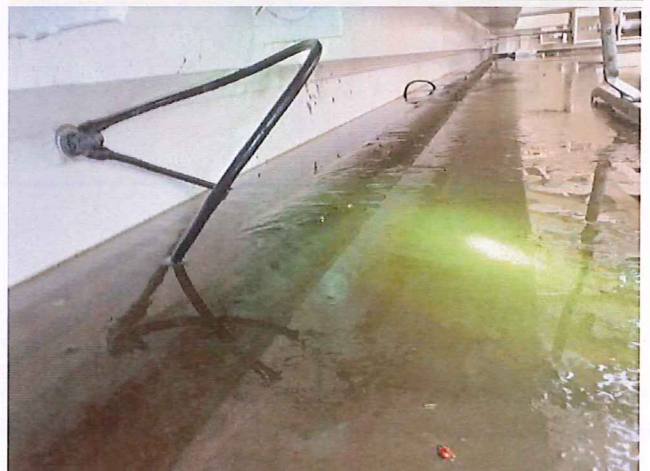
IDR Sheet Sheet 3 of 3	QA Key Personnel Function Structural Inspector	Date Monday, March 30, 2015
Inspector Doug Brinius		IDR Report # 3/30/2015 DB
Inspector's Notes		



TOP FOUR: Solvent wipe test upon Fast Clad, truss relocation

<b>IDR Sheet</b> Sheet 3 of 9	<b>QA Key Personnel Function</b> Structural Inspector	<b>Date</b> Tuesday, April 21, 2015
<b>Inspector</b> Doug Brinius	<b>IDR Report #</b> 4/21/2015 DB	
<b>Inspector's Notes</b>		
<p>Continued:</p> <p><u>Retaining Wall Bolt Removal</u>: Bolts remaining within retaining ("pony") wall within casting basin via OxyLance; bolt was melted out of wall; confirmed average depth of 4". Slag within holes not cleaned out as of this date.</p> <p><b>Punchlist Item #14</b>: Missed repairs to gate walkway which were primed on 4/20/15 had application of Duraplate-235 applied, allowed 24 hours of cure at an average of 49 F; highest recordable humidity was 96% at 4:53 AM. Handrail brackets with 1st coat of Duraplate-235 were inspected via pencil hardness gauge at 7:30AM; noted that repairs had reached H and 2H mol rating prior to first application of 1 gallon of Sherwin William Duraplate-235 Epoxy coating, mixed via hand paddle for 3 minutes; NOAA documentation verified with independent psychrometer revealed coating environment of 61 F, with humidity ranging from 53% to 56% under clear skies.</p> <p><b>Punchlist Item #149</b>: The dent within the fish screen has been fixed by physical rearrangement ; see attached photos.</p> <p><b>Punchlist Item #122</b>: Verified that additional cathodic protection has been bolted to T1 truss of gate.</p> <p><i>Significant Communications</i>: None. <i>Non-conforming work / corrective measures noted on this date</i>: None <i>Safety-related problems /corrective measures</i>: Trip hazards on rawl pins and slick bond breaker within basin floor. <i>Traffic control setup / corrective measures</i>: Red taped area around tower 2 demobe, and around trestle pack removal.</p>		

IDR Sheet	QA Key Personnel Function	Date
Sheet 7 of 9	Structural Inspector	Tuesday, April 21, 2015
Inspector	IDR Report #	
Doug Brinius	4/21/2015 DB	
Inspector's Notes Continued		



**TOP FOUR:** UngROUTed section of catch basin elements, wood debris by POC 7 outfall, workzone safety  
**BOTTOM TWO:** PLI #122

IDR Sheet	QA Key Personnel Function	Date
Sheet 8 of 9	Structural Inspector	Tuesday, April 21, 2015
Inspector Doug Brinius	IDR Report # 4/21/2015 DB	
Inspector's Notes Continued		



**TOP SIX:** Handrail coating repairs, dented fishgrate on HCS box (PLI #149), oxy-lance removal of shi-bolt holes and typical repairs remianing for Southern portion of casting basin slab

Casting Basin Design Submittal 80

Gate Ribbon Anode Design

## Sbmtl DR-CB 80

April 02, 2015

**Subject:** Casting Basin Gate Ribbon Anode Design

**Project:** SR 520 Pontoon Construction

**Submitted:** March 27, 2015 12:50 pm

**Status:** In Process

**Description:** Attached is the recommended solution from Norton Corrosion to resolve the corrosion observed during the cycle 6 gate inspection. It involves adding a cathodic protection system by galvanic ribbon anode in the sump on the T1.

Please review the design and material then approve for construction.

### User Fields

---

<b>Major Area</b>	A2- Casting Facility Construction
<b>Specific Area</b>	S2 - Casting Basin
<b>Type of Work</b>	T7-Structural Steel
<b>Specification Reference</b>	2.13.1 - Pontoon Casting Facilities
<b>CM Remarks</b>	
<b>Reviewed by Design Manager?</b>	Yes
<b>DM Remarks</b>	Review completed.
<b>Approved by HNTB?</b>	Yes
<b>HNTB Remarks</b>	Design and material acceptable.
<b>Reviewed by Design Team?</b>	Yes
<b>Design Team Remarks</b>	
<b>Reviewed by QA Manager?</b>	
<b>QA Manager Remarks</b>	
<b>WSDOT Comments</b>	



## NORTON CORROSION LIMITED

8820 222<sup>nd</sup> Street SE, Woodinville, WA 98077  
Phone (425) 483-1616 • Fax (425) 485-1754  
e-mail: sales@nortoncorrosion.com

March 16, 2015

HNTB

Attn: Thomas Schnetzer  
600 108<sup>th</sup> Avenue NE  
Bellevue, WA 98004

Subject: **SR-520 PONTOON DRYDOCK GATE  
SUMP CORROSION INSPECTION  
TECHNICAL MEMO**

Dear Mr. Schnetzer:

On March 11, 2015, Norton Corrosion Limited (NCL) personnel completed a follow-up inspection of the gate for the SR-520 pontoon drydock construction facility. This inspection was requested to examine coating failure along with aggressive corrosion within the gate sump.

### Findings

A visual inspection of the clips (which were coated during the previous float-out) shows substantial coating loss. Similar coating failures were also found on the gate in areas where the coating was previously repaired. The gate coating originally required a 7 day cure time prior to submersion. Since the gate was never out of service for more than a few days, cure time was never sufficient.

A review of the front submerged side of the gate indicated that although there was some coating loss, the anodes were functioning as designed. Anode wear was relatively minimal as anticipated.

Significant corrosion was found on the base of the dry side of the gate. This area (Image 1) sits in standing water. Since the sump is located on the dry side it cannot be protected by the aluminum anodes on the front. Previous testing indicated that the standing water in the sump had a resistivity of 180-ohm-centimeters, which is classified as "aggressive" with respect to corrosivity. The carbon steel in the sump is electrically continuous with the stainless steel clips and studs. Since the coating did not adhere properly to the clips, the corrosion cell between the two dissimilar metals was substantial, resulting in significant pitting (Image 2-3).

### Recommendations

To resolve the corrosion issues, the coating should be repaired per the manufacturer's recommendations for submerged use. Additionally, as a secondary method of preventing corrosion, galvanic ribbon anodes should be installed in the sump. The combination of coating repairs and cathodic protection will greatly reduce the corrosion rate.

HNTB

March 16, 2015

Page 2

### Anode Calculations

- The length of the Sump is approximately 110-feet long and 8-inches deep. The amount of submerged steel would be the depth of the gate x the length (110' x (8'/12")) giving a surface area of 73.3-feet<sup>2</sup>.
- For the purpose of this design, the coating quality will be 50%. This will account for a significant coating failure over the next several years.
- The CP system will only need to protect uncoated surfaces, or 50% of 73.3-feet<sup>2</sup> which is 37-feet<sup>2</sup>.
- Based on the NACE engineering handbook, consider using 7 milliamps (mA) per square foot of exposed metal. 7 mA x 37 = 259 mA will be required.
- Calculate the resistance of a 110 foot anode, laid in the sump from end to end.

Anode resistance - based on using zinc ribbon (+ Size) 0.875" x 0.625" x 110' feet long,

$$R = \frac{0.00521 \times \rho}{L} \left( \ln \frac{8 \times L}{D} - 1 \right)$$

R = anode to water resistance

ρ = water resistivity (180 ohm-cm)

D = calculated diameter of anode in feet (0.83" = 0.07')

L = anode length (110')

0.00521 = Unit conversion factor

$$R = \frac{0.00521 \times 180}{110'} \left( \ln \frac{8 \times 110'}{0.07} - 1 \right)$$

$$R = 0.072 \text{ ohms}$$

- Driving voltage of zinc to steel

$$V = 1.1 \text{ volts} - 0.70 \text{ volts} = 0.40 \text{ volts}$$

- Current output

$$I = \frac{V}{R} = \frac{0.40}{0.072} = 5.6 \text{ amps}$$

HNTB  
March 16, 2015  
Page 3

- Anode Life

$$\text{Life} = \frac{132 \text{ lbs} \times 90\% \times 85\%}{23 \text{ .75 lbs/amp} \cdot \text{year} \times 0.259 \text{ amps}} = 16 \text{ years}$$

Therefore, a segment of zinc ribbon laid inside of the trench from end to end will provide sufficient protection and satisfy the 12 year design life. For ease of installation and removal, the anode will be cut into two 55-foot sections and connected at each end. This will make removal and installation easier.

A proposed drawing of this installation has been provided along with a cut sheet of the anode ribbon.

Anode/wire connections - ROM estimate = \$1,000.

NCL appreciates the opportunity to be of service to HNTB. If you have any questions or additional concerns, please contact our office.

Sincerely,

Matt Slosson  
NACE CP Specialist

P:\Documents\ENGINEERING\20123\_HNTB\_520\_DD\_Gate\_Sump\_Tech\_Memo\_R1

HNTB  
March 16, 2015  
Page 4

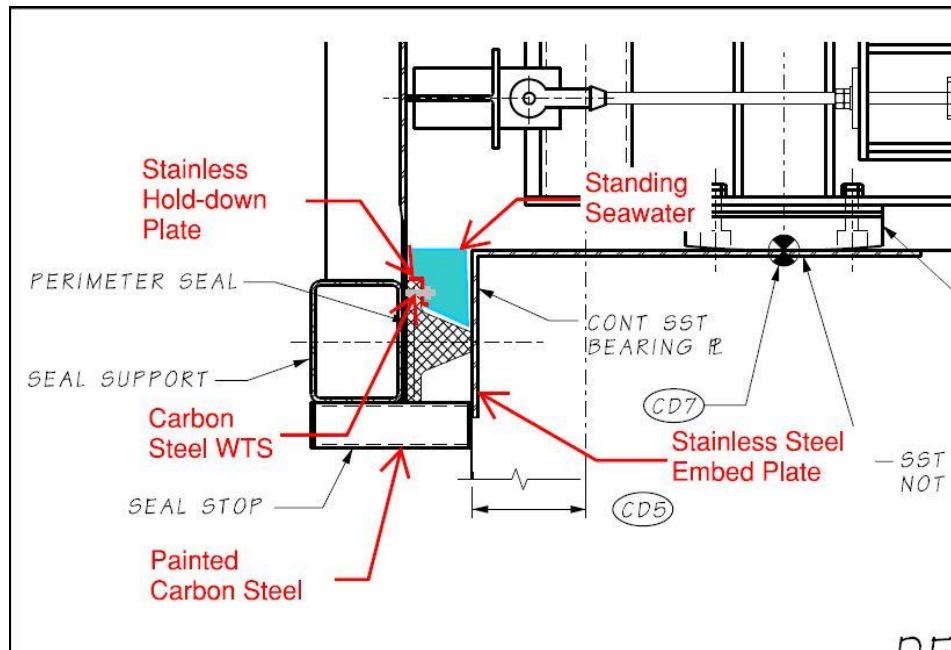


Image 1: Water filled sump between the gate and the concrete. A stainless steel clip is used to secure the seal to the carbon steel gate. Coating failure, combined with dissimilar metals, resulted in aggressive corrosion in a relatively short period of time.



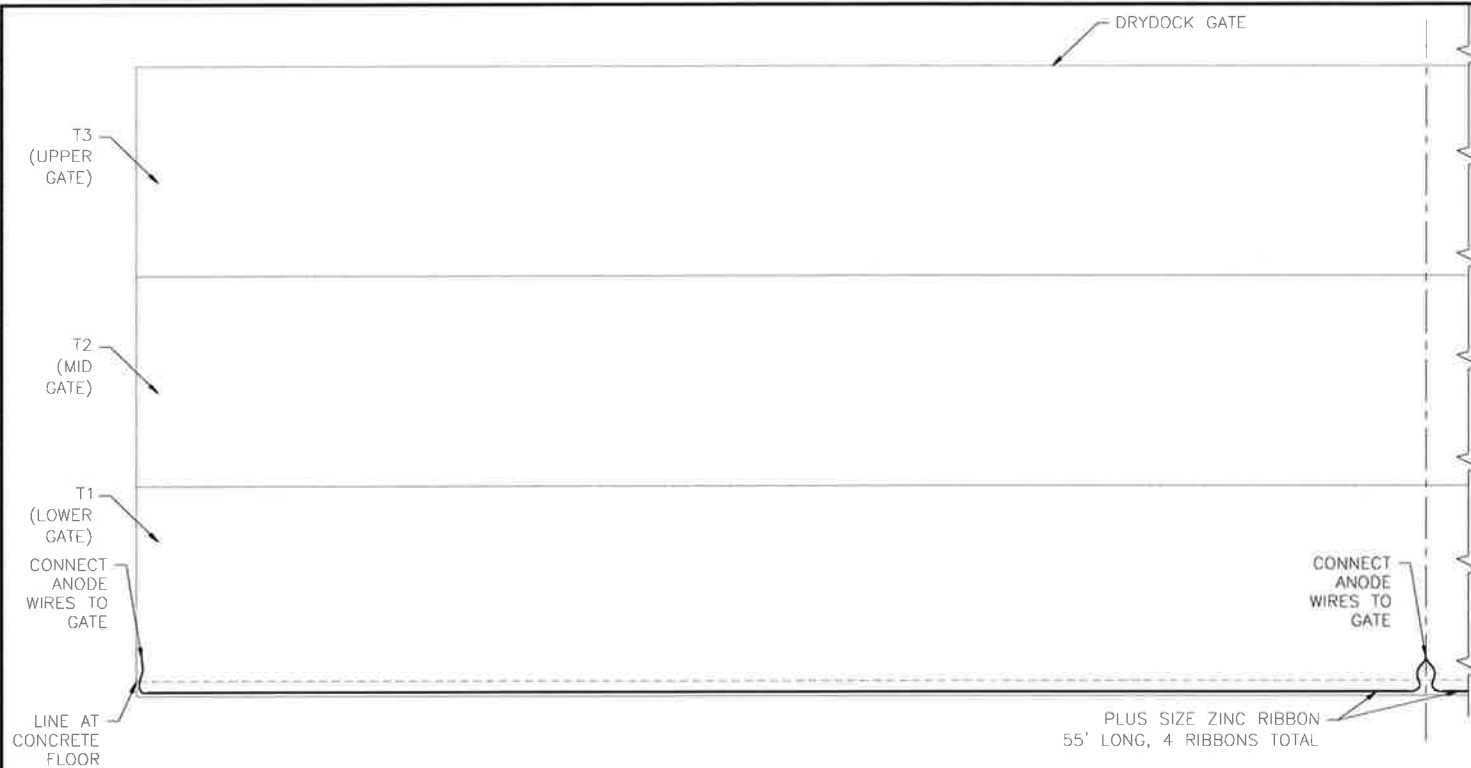
Image 2: Most of the corrosion occurred adjacent to the stainless steel clip.

HNTB  
March 16, 2015  
Page 5

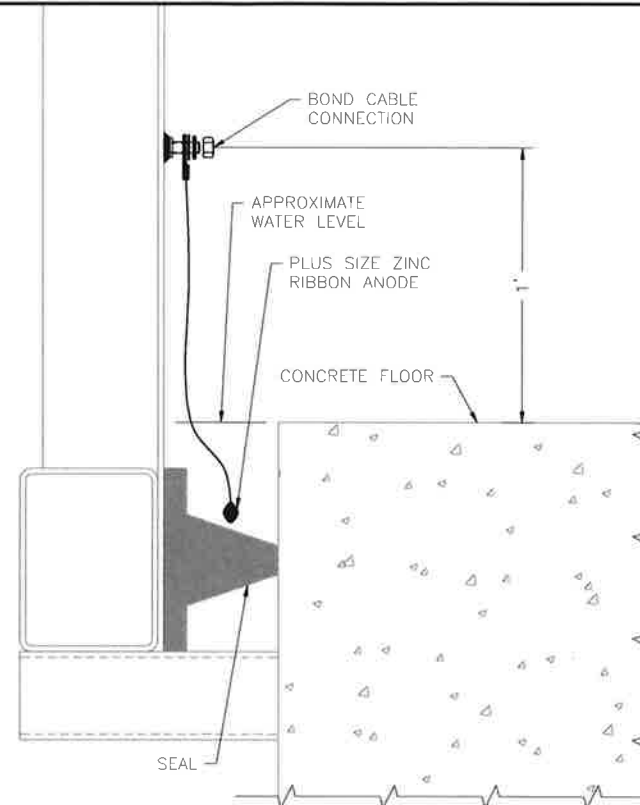


Image 3: Corrosion on the bottom right corner of the gate. At this location there is another stainless steel clip running vertically. There is more stainless steel at this location, which explains why the penetration occurred here.

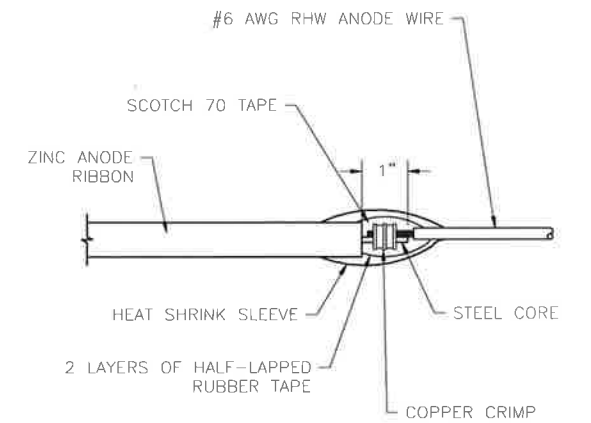
# PROPOSED INSTALLATION DRAWING 1 of 1



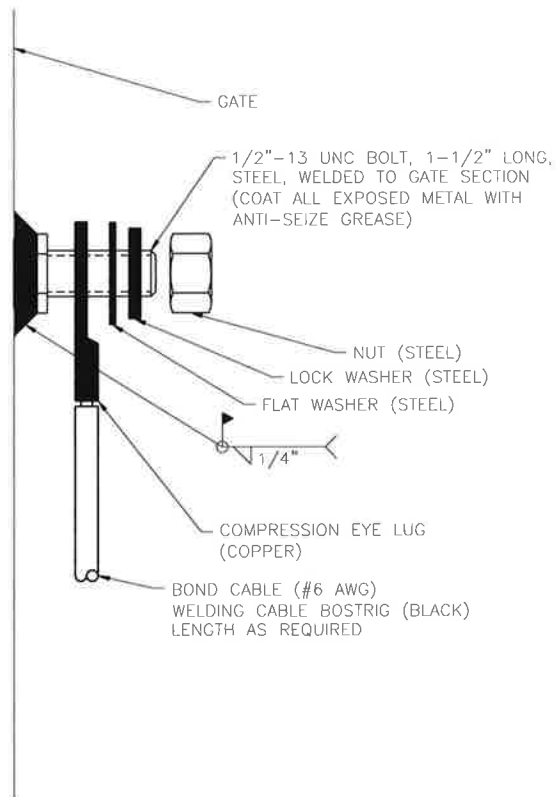
**BACK ELEVATION**



**ANODE INSTALLATION**



**ANODE DETAIL**



**BOND CABLE CONNECTION**

<p>12MAR15 13AUG14</p>	<p>REVISED PER CUSTOMER COMMENTS REVISED PER CUSTOMER COMMENTS</p>	<p>M.S. M.S.</p>	<p>Approved</p>	<p>Date</p>	<p>Revision</p>	<p>Approved</p>		<p> <b>Norton Corrosion Limited</b> Woodinville, WA. (800) 426-3111 www.nortoncorrosion.com</p>	<p>HNTB 520 DRYDOCK GATE SUMP ANODE INSTALLATION</p> <p>REF. N.C.L. JOB#: E-20123</p>	<p>Drawing #: D-20123-02 Designed By: M.S. Drawn By: R. Hunt Approved By: E.S. Date Drawn: 01AUG2014 Revision #: 2 Drawing Scale: None</p>	
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## RIBBON ANODE CUT SHEET 1 of 1

# Extruded Zinc Anodes

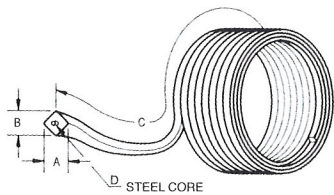
## Chemical Composition (%)

	Al	Cd	Fe (max)	Pb (max)	Cu (max)	Zn
Type I	0.1-0.5	0.02-0.07	0.005	0.006	0.005	Balance
Type II	0.005 max	0.003 max	0.0014	0.003	0.002	Balance
High Purity	0.003 max	0.002 max	0.001	0.003	0.001	99.995 min

## Electrochemical Properties

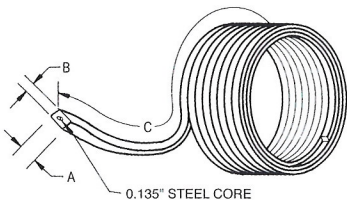
	Open-Circuit Voltage (-V respect to Cu/CuSO <sub>4</sub> )	Closed-Circuit Voltage (-V respect to Cu/CuSO <sub>4</sub> )	Actual Capacity (A·h/lb)	Current Efficiency (%)
Type I	> 1.05	> 1.00	353	95
Type II	> 1.10	> 1.05	335	90
High Purity	> 1.10	> 1.05	335	90

### RIBBON (DIAMOND SHAPE)



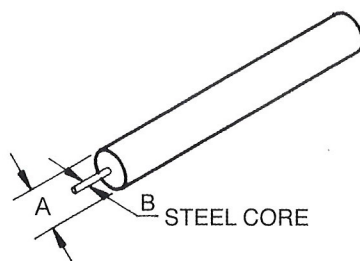
Type	Dimensions				Weight (lb/ft)
	A (in.)	B (in.)	C (ft/coil)	D (in.)	
Super	1	1-1/4	100	0.185	2.4
Plus	5/8	7/8	200	0.135	1.2
Standard	1/2	9/16	500,1000,3600	0.130	0.6
Small	11/32	15/32	1000	0.115	0.25

### RIBBON (RECTANGULAR SHAPE)



Dimensions			Weight (lb/ft)
A (in.)	B (in.)	C (ft/coil)	
3/4	3/8	1,000	0.83

### ROD



Dimensions (in.)		Weight (lb/ft)
A	B	
0.550	0.079	0.74
0.750	0.135	1.37
0.840	0.135	1.72
1.050	0.135	2.68
1.315	0.135	4.20
1.561	0.188	5.92
2.024	0.188	9.95

# Sherwin Williams Letters

DuraPlate 235 Cure Duration & Seal Replace

Fast Clad Compatibility



**SHERWIN-WILLIAMS.**  
**Industrial & Marine Coatings**

---

Kevin Borgeson. Protective Coatings Consultant. 2940 6<sup>th</sup> Ave. South. Seattle, WA 98134  
Phone: 206.979.1208 Fax: 360.387.5904 Email: [swrep6313@sherwin.com](mailto:swrep6313@sherwin.com) / [www.sherwin-williams.com](http://www.sherwin-williams.com)

March 25, 2015

Michael Schmidt  
Kiewit Construction

Re: SR520 Pontoon Construction Project – Aberdeen; Dura-Plate 235 Cure times

Mr. Schmidt,

In regards to your inquiry, I have confirmed with our technical department that the cure time for the Dura-Plate 235 (with spikes of 9-11 mils dft) will be five days from completion of the final coat. This cure time is based on the environmental conditions you have provided, a temperature average of 100 degrees F and a relative humidity of 26 percent.

The spikes of up to 11 mils dft will not significantly affect the cure time of 5 days. The DP 235 interpolation chart you created does not take into account the nature of the DP 235 phenalkamine curing agent. At the higher temperatures and the lower relative humidity you achieved, the cure time is accelerated more than your chart takes into account.

In regards to the seal replacement, you can begin putting them back on after 84 hours of cure time at the average temperature and relative humidity values provided above.

If you have any questions or need any further information, please let me know.

Respectfully,

*Kevin Borgeson*

Kevin Borgeson  
Coatings Consultant  
The Sherwin-Williams Co.  
Protective and Marine



**SHERWIN-WILLIAMS.**  
*Industrial & Marine Coatings*

---

Kevin Borgeson. Protective Coatings Consultant. 2940 6<sup>th</sup> Ave. South. Seattle, WA 98134  
Phone: 206.979.1208 Fax: 360.387.5904 Email: [swrep6313@sherwin.com](mailto:swrep6313@sherwin.com) / [www.sherwin-williams.com](http://www.sherwin-williams.com)

March 24, 2015

Michael Schmidt  
Kiewit Construction

Re: SR520 Pontoon Construction Project – Aberdeen; Dura-Plate 235 Cure times

Mr. Schmidt,

In regards to your inquiry, the cure time for the Dura-Plate 235 at 9-11 mils dft will be five days from completion of the final coat of the DP 235. This cure time is based on the environmental conditions you have provided, a temperature average of 100 degrees F and a relative humidity of 26 percent.

If you have any questions or need any further information, please let me know.

Respectfully,

*Kevin Borgeson*

Kevin Borgeson  
The Sherwin-Williams  
Co.

# Sherwin Williams Letter

Fast Clad ER



SHERWIN-WILLIAMS  
2940 SIXTH AVENUE SOUTH  
SEATTLE, WA 98134 2104  
(206) 622-3896

04/03/2015

Michael Schmidt  
KIEWIT-GENERAL, A J.V.  
1301 West Heron St.  
Aberdeen, WA 98520

Re: Submittal for SR 520 Pontoon Replacement Aberdeen - Casting Basin Gate

Dear Michael Schmidt:

In regards to your inquiry for a rapid cure coating to touch up the casting basin gate, I recommend the Fast-Clad ER. Included in this package is the Sherwin-Williams Product Data and MSDS for the FC ER.

When applied per Sherwin-Williams recommendations, the Fast Clad ER will provide a system equal to the Dura-Plate 235 for the conditions on this specific project. Cure to immersion service is 24 hours at 77F and a RH of 50%. If you are still using the containment and heat, the return to service is 12 at 100F and a RH of 50%.

Surface prep to near white metal and then apply one coat of the Fast-Clad ER at 18.0-22.0 mils dft. For this application, the Fast-Clad ER is compatible with the DP 235.

Should you require assistance or have any questions or concerns, please contact me at (206) 979-1208 or e-mail me at [swrep6313@sherwin.com](mailto:swrep6313@sherwin.com).

Sincerely,

*Kevin Borgeson*

KEVIN W BORGESON  
Sherwin-Williams  
Sales Representative



## **SR 520 Pontoon Replacement Aberdeen**

**KIEWIT CONSTRUCTION**

-

Prepared By:

KEVIN W BORGESON  
Sales Representative  
swrep6313@sherwin.com  
(206) 979-1208



## SCHEDULE

### Exterior Finishes

#### Steel

One Coat: B62W00230 - Fast Clad ER - B62W230

END OF SECTION

## **Data Pages**



# Protective & Marine Coatings

## FAST CLAD® ER EPOXY WITH OPTI-CHECK OAP TECHNOLOGY

PART A  
PART A  
PART A  
PART B  
PART B

B62W230  
B62L230  
B62RW230  
B62V230  
B62AV230

WHITE BASE  
BLUE OAP  
RED OXIDE  
CLEAR HARDENER  
GRAY HARDENER

Revised: October 28, 2014

### PRODUCT INFORMATION

9.50

#### PRODUCT DESCRIPTION

**Fast Clad ER Epoxy** is an edge retentive, ultra high solids epoxy amine coating engineered for immersion service in sea water ballast tanks, fuel/sea water ballast tanks, and petroleum storage tanks. The rapid return to service and high build, edge retentive properties of this coating provide superior protection compared to conventional epoxies.

- One coat protection
- Low VOC
- Dry to walk-on within four hours
- Designed for plural-component application equipment
- Greater than 70% edge build retention
- Low Temperature application and cure capabilities to 35°F (See Application Conditions)
- Fast return to service
- Low odor

#### PRODUCT CHARACTERISTICS

Finish:	Gloss
Color:	White-Base, Blue OAP, Red Oxide
Volume Solids:	98%, ± 2%, mixed
Weight Solids:	98%, ± 2%, mixed
VOC (EPA method #24):	<85 g/L; 0.71 lb/gal, mixed
Mix Ratio:	1:1 by volume

#### Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	18.0 (450)	22.0 (550)
Dry mils (microns)	18.0 (450)	22.0 (550)
~Coverage sq ft/gal (m <sup>2</sup> /L)	73 (1.8)	89 (2.2)

\*Can be applied up to 60.0 mils (1500 microns) dft if required.

Theoretical coverage sq ft/gal (m<sup>2</sup>/L) @ 1 mil / 25 microns dft **1568 (38.4)**

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

#### Drying Schedule @ 20.0 mils (500 microns):

	@ 40°F/4.5°C	@ 77°F/25°C 50% RH	@ 100°F/38°C
To touch:	6 hours	1 hour	35 minutes
To handle:	8-12 hours	3 hours	55 minutes
To recoat:			
minimum:	6 hours	1 hour	35 minutes
maximum:	14 days	14 days	14 days
Foot traffic:	8-12 hours	3 hours	1 hour
Cure to service:	36 hours	24 hours	12 hours
Pot Life:		7 minutes	
Sweat-in-Time:		None required	

Shelf Life:	24 months Store indoors at 40°F (4.5°C) to 100°F (38°C)
Flash Point:	230°F (110°C), PMCC, mixed
Reducer:	Not recommended
Clean Up:	MEK (R6K10) or Reducer R7K104

#### RECOMMENDED USES

For use over prepared steel or masonry surfaces in industrial and marine exposures such as:

- Ballast tank interiors and oil storage tank interiors
- Fuel storage tanks and external pipeline coating
- Primary or Secondary containment
- Acceptable for use with cathodic protection systems
- Where rapid return to service and edge protection film build properties are required
- Meets MIL-PRF-23236 Type VII, Class 5, 7, 5/18, 7/18, 13/18, 17, 17/18 Grade C requirements for single and multi-coat seawater, fuel, bilges, and CHT tanks
- Blue OAP contains fluorescent pigment
- Wind tower gearbox lining and transformer lining up to 204°F (96°C)
- Suitable for use in the Mining & Minerals Industry

#### PERFORMANCE CHARACTERISTICS

Substrate\*: Steel

Surface Preparation\*: SSPC-SP10

System Tested\*:

1 ct. Fast Clad ER Epoxy @ 18.0-22.0 mils (450-550 microns) dft  
\*unless otherwise noted below

Test Name	Test Method	Results
Abrasion Resistance	ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load	22.4 mg loss
Adhesion	ASTM D4541	>2000 psi
Cathodic Disbondment	ASTM G8	Passes 30 days @ 1.5 volts (Cu/CuSO <sub>4</sub> ), <10 mm disbondment radius
Corrosion Weathering	ASTM D5894, 4 cycles, 1134 hours	Rating 10 per ASTM D610 for Rusting (field); Rating 10 per ASTM D714 for Blistering (field)
Direct Impact Resistance	ASTM D2794	15 in-lb
Dry Heat Resistance	ASTM D2485	250°F (121°C)
Flexibility	ASTM D522	7/16" (24-hour cure)
Moisture Condensation Resistance	ASTM D4585, 100°F (38°C), 2000 hours	Rating 10 per ASTM D610 for Rusting (field); Rating 10 per ASTM D714 for Blistering (field)
Pencil Hardness	ASTM D3363	H

\*Report No. IM54.1382-09

Immersion (ambient temperature) for the following:

- Ballast tank mix ..... Recommended
- Crude oil ..... Recommended
- Fresh water ..... Recommended
- Gasoline ..... Recommended
- Sea water..... Recommended
- Reformulated gasoline ..... Recommended
- Kerosene ..... Recommended

Epoxy coatings may darken or yellow after application and curing.



# Protective & Marine Coatings

## FAST CLAD® ER EPOXY WITH OPTI-CHECK OAP TECHNOLOGY

PART A  
PART A  
PART A  
PART B  
PART B

B62W230  
B62L230  
B62RW230  
B62V230  
B62AV230

WHITE BASE  
BLUE OAP  
RED OXIDE  
CLEAR HARDENER  
GRAY HARDENER

Revised: October 28, 2014

### PRODUCT INFORMATION

9.50

#### RECOMMENDED SYSTEMS

	Dry Film Thickness / ct.	
	Mils	(Microns)
<b>Steel, immersion:</b>		
1 ct. Fast Clad ER Epoxy	18.0 -22.0	(450-550)
<b>Steel, immersion:</b>		
1 ct. Fast Clad Epoxy Primer	4.0 -8.0**	(100-200)
1 ct. Fast Clad ER Epoxy	18.0-22.0	(450-550)
<b>Steel, immersion:</b>		
2 cts. Fast Clad ER Epoxy	9.0-11.0	(225-275)
<b>Concrete, immersion:</b>		
1 ct. Corobond 100 Epoxy Primer/Sealer; apply primer to achieve uniform hiding, appearance, and complete wetting of the concrete surface, approximately 4-6 . Coating will be partially absorbed into the concrete. Roll out any puddles.		
2 cts. Fast Clad ER Epoxy	9.0 – 11.0	(225-275)

\*\*When using B62L245 Primer containing the OAP fluorescent pigment, make sure a non-containing OAP fluorescent pigment topcoat is used.

The systems listed above are representative of the product's use, other systems may be appropriate.

#### SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

#### DISCLAIMER

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.

#### WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

#### SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Refer to product Application Bulletin for detailed surface preparation information.

Minimum recommended surface preparation:

<b>Iron &amp; Steel:</b>	
Atmospheric:	SSPC-SP6/NACE 3, 2 mil (50 micron) profile or SSPC-SP12/NACE No. 5, WJ-3/SC-2
Immersion:	SSPC-SP10/NACE2, 2-3 mil (50-75 micron) profile or SSPC-SP12/NACE No. 5, WJ-2/SC-2
<b>Concrete &amp; Masonry:</b>	
Atmospheric:	SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP2-3
Immersion:	SSPC-SP13/NACE 6-4.3.1 or 4.3.2, or ICRI No. 310.2R, CSP2-3

#### Surface Preparation Standards

Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE
White Metal	Sa 3	Sa 3	SP 5	1
Near White Metal	Sa 2.5	Sa 2.5	SP 10	2
Commercial Blast	Sa 2	Sa 2	SP 6	3
Brush-Off Blast	Sa 1	Sa 1	SP 7	4
Hand Tool Cleaning	C St 2	C St 2	SP 2	-
Pitted & Rusted	D St 2	D St 2	SP 2	-
Rusted	C St 3	C St 3	SP 3	-
Power Tool Cleaning	Pitted & Rusted D St 3	D St 3	SP 3	-

#### TINTING

Do not tint part A. 5 gallons (18.9L) of clear hardener part B may be tinted with up to 2.75 ounces of Maxitoner Colorant Phthalo Green or Black only.

#### APPLICATION CONDITIONS

Temperature:  
Air & surface: 40°F (4.5°C) minimum\*, 110°F (43°C) maximum

\*For application at 35°F (1.7°C) to 40°F (4.5°C), specific guidelines are required:

- Air & Surface temperature conditions must be expected to remain stable or improve for a period of four hours.
- Environmental controls (dehumidification, heating, forced-air ventilation) are recommended to maintain acceptable application conditions.
- Final cure must be confirmed in accordance with ASTM D5402, "Assessing the Solvent Resistance of Organic Coatings Using Solvent Rubs". Test shall consist of 50 double rubs with MEK. Test shall confirm no loss of DFT, and no coating residue on rubbing cloth.

The material should be 85°F-130°F/29°C-54°C (vary as needed) at the mixing block for optimal atomization based on tip size and pump pressure.. **Do not heat above 140°F/60°C.**

Relative humidity: 85% maximum

Refer to product Application Bulletin for detailed application information.

#### ORDERING INFORMATION

Packaging:  
Part A: 5 gallon (18.9L) container  
Part B: 5 gallon (18.9L) container  
Weight: 11.71, ± 0.3 lb/gal ; 1.4 Kg/L, mixed



# Protective & Marine Coatings

## FAST CLAD® ER EPOXY WITH OPTI-CHECK OAP TECHNOLOGY

PART A  
PART A  
PART A  
PART B  
PART B

B62W230  
B62L230  
B62RW230  
B62V230  
B62AV230

WHITE BASE  
BLUE OAP  
RED OXIDE  
CLEAR HARDENER  
GRAY HARDENER

Revised: October 28, 2014

### APPLICATION BULLETIN

9.50

#### SURFACE PREPARATIONS

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

##### Iron & Steel (atmospheric service)

Minimum surface preparation is Commercial Blast Cleaning per SSPC-SP6/NACE 3 or SSPC-SP12/NACE No. 5. For surfaces prepared by SSPC SP6/NACE 3, first remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. For better performance, use Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2-3 mils / 50-75 microns). For surfaces prepared by SSPC-SP12/NACE No. 5, all surfaces shall be cleaned in accordance with WJ-3/SC2. Pre-existing profile should be approximately 2 mils (50 microns). Prime any bare steel the same day as it is cleaned or before flash rusting occurs.

##### Iron & Steel (immersion service)

Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Near White Metal Blast Cleaning per SSPC-SP10/NACE 2, or SSPC-SP12/NACE No. 5. For SSPC-SP10/NACE 2, blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2-3 mils / 50-75 microns). For SSPC-SP12/NACE No.5, all surfaces to be coated shall be cleaned in accordance with WJ-2/SC2 standards. Pre-existing profile should be approximately 2 mils (50 microns). Remove all weld spatter. Prime any bare steel the same day as it is cleaned or before flash rusting occurs.

##### Concrete and Masonry

For surface preparation, refer to SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 2-3. Surfaces should be thoroughly clean and dry. Concrete and mortar must be cured at least 28 days @ 75°F (24°C). Remove all loose mortar and foreign material. Surface must be free of laitance, concrete dust, dirt, form release agents, moisture curing membranes, loose cement and hardeners. Fill bug holes, air pockets and other voids with Steel-Seam FT910. Primer required.

##### Follow the standard methods listed below when applicable:

ASTM D4258 Standard Practice for Cleaning Concrete.  
ASTM D4259 Standard Practice for Abrading Concrete.  
ASTM D4260 Standard Practice for Etching Concrete.  
ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete.  
SSPC-SP 13/Nace 6 Surface Preparation of Concrete.  
ICRI No. 310.2R Concrete Surface Preparation.

##### Concrete, Immersion Service:

For surface preparation, refer to SSPC-SP13/NACE 6, Section 4.3.1 or 1.3.2 or ICRI No. 310.2R, CSP 2-3.

#### Surface Preparation Standards

Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE
White Metal	Sa 3	Sa 3	SP 5	1
Near White Metal	Sa 2.5	Sa 2.5	SP 10	2
Commercial Blast	Sa 2	Sa 2	SP 6	3
Brush-Off Blast	Sa 1	Sa 1	SP 7	4
Hand Tool Cleaning	C St 2	C St 2	SP 2	-
Pitted & Rusted	D St 2	D St 2	SP 2	-
Rusted	C St 3	C St 3	SP 3	-
Power Tool Cleaning	D St 3	D St 3	SP 3	-

#### APPLICATION CONDITIONS

Temperature:  
Air & surface: 40°F (4.5°C) minimum\*, 110°F (43°C) maximum

\*For application at 35°F (1.7°C) to 40°F (4.5°C), specific guidelines are required:

- Air & Surface temperature conditions must be expected to remain stable or improve for a period of four hours.
- Environmental controls (dehumidification, heating, forced-air ventilation) are recommended to maintain acceptable application conditions.
- Final cure must be confirmed in accordance with ASTM D5402, "Assessing the Solvent Resistance of Organic Coatings Using Solvent Rubs". Test shall consist of 50 double rubs with MEK. Test shall confirm no loss of DFT, and no coating residue on rubbing cloth.

The material should be 85°F-130°F/29°C-54°C (vary as needed) at the mixing block for optimal atomization based on tip size and pump pressure.. **Do not heat above 140°F/60°C.**

Relative humidity: 85% maximum

#### APPLICATION EQUIPMENT

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compliant with existing VOC regulations and compatible with the existing environmental and application conditions.

Reduction .....Not recommended

Clean Up .....MEK (R6K10) or R7K104

##### Plural Component Equipment

Pump.....WIWA DUOMIX 1:1, Graco Extreme Mix, Graco XM, or Graco XP  
Pressure.....4000 psi  
Hose.....3/8" ID  
Tip .....0.021" - .025"  
Pump heater setting.....70 - 80  
Material temperature at  
gun tip .....85°F-130°F (29°C-54°C)  
(vary as needed)

Brush .....For stripe coating and repair only  
Brush.....Nylon/Polyester or Natural Bristle

Roller .....For stripe coating and repair only  
Cover .....3/8" woven with solvent resistant core

If specific application equipment is not listed above, equivalent equipment may be substituted.



# Protective & Marine Coatings

## FAST CLAD® ER EPOXY WITH OPTI-CHECK OAP TECHNOLOGY

PART A	B62W230	WHITE BASE
PART A	B62L230	BLUE OAP
PART A	B62RW230	RED OXIDE
PART B	B62V230	CLEAR HARDENER
PART B	B62AV230	GRAY HARDENER

Revised: October 28, 2014

### APPLICATION BULLETIN

9.50

#### APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

**Mixing Instructions:** Mix contents of each component thoroughly using low speed power agitation. Make certain no pigment remains on the bottom or the sides of the can. Then combine one part by volume of Part A with one part by volume of Part B. Thoroughly agitate the mixture with power agitation.

To ensure that no unmixed material remains on the sides or bottom of the cans after mixing, visually observe the container by pouring the material into a separate container.

Apply paint at the recommended film thickness and spreading rate as indicated below:

#### Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	18.0 (450)	22.0 (550)
Dry mils (microns)	18.0 (450)	22.0 (550)
~Coverage sq ft/gal (m <sup>2</sup> /L)	73 (1.8)	89 (2.2)

\*Can be applied up to 60.0 mils (1500 microns) dft if required.

**Theoretical coverage sq ft/gal (m<sup>2</sup>/L) @ 1 mil / 25 microns dft** 1568 (38.4)

*NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.*

#### Drying Schedule @ 20.0 mils (500 microns):

	@ 40°F/4.5°C	@ 77°F/25°C	@ 100°F/38°C
		50% RH	
To touch:	6 hours	1 hour	35 minutes
To handle:	8-12 hours	3 hours	55 minutes
To recoat:			
minimum:	6 hours	1 hour	35 minutes
maximum:	14 days	14 days	14 days
Foot traffic:	8-12 hours	3 hours	1 hour
Cure to service:	36 hours	24 hours	12 hours
Pot Life:		7 minutes	
Sweat-in-Time:		None required	

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

#### CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with MEK, R6K10. Clean tools immediately after use with MEK, R6K10. Follow manufacturer's safety recommendations when using any solvent.

#### DISCLAIMER

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.

#### PERFORMANCE TIPS

##### Repair of Pitted Tank Bottoms

##### Extensive, deep pitting:

##### Options:

**Option 1** ..Apply a full wet coat, by spray application, of Fast Clad Epoxy Primer. Follow with rubber squeegee to work material into and fill the pitted areas. After recommended drying time, apply a full coat of Fast Clad ER at recommended film thickness.

**Option 2** ..Apply Dura-Plate UHS Clear Laminant Resin with 1½ oz fiberglass mat over the pitted areas. After recommended drying time, apply a full coat of Fast Clad ER at recommended film thickness.

**Option 3** ..Weld new steel plates, or use puddle welds, as required to repair pitted areas. Coat areas as recommended.

##### Shallow pitting, isolated areas:

##### Options:

**Option 1** ..Same as number 1 above.

**Option 2** ..Apply Steel Seam FT910 as required to fill the pitted areas. Coat areas as recommended.

When using spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. If necessary, cross-coat spray at a right angle.

Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions, and excessive film build.

No reduction of material is recommended as this can affect film build, appearance, and adhesion.

Stripe coat all crevices, welds, and sharp angles to prevent early failure in these areas.

Do not mix previously catalyzed material with new.

Do not apply the material beyond recommended pot life.

**Remove and solvent clean tip housing every 20-30 minutes.**

**For Immersion Service:** (if required) Holiday test in accordance with ASTM D5162 for steel, or ASTM D4787 for concrete.

When using an OAP fluorescent pigment system, use the Fast Clad Epoxy Primer, with a non-OAP containing Fast Clad ER topcoat color.

Guidance on techniques and required equipment to inspect a coating system incorporating Opti-Check OAP Technology can be found in SSPC-TU 11.

Refer to Product Information sheet for additional performance characteristics and properties.

#### SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

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#### WARRANTY

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# Norton Corrosion Technical Memo



## NORTON CORROSION LIMITED

8820 222<sup>nd</sup> Street SE, Woodinville, WA 98077  
Phone (425) 483-1616 • Fax (425) 485-1754  
e-mail: sales@nortoncorrosion.com

March 16, 2015

HNTB

Attn: Thomas Schnetzer  
600 108<sup>th</sup> Avenue NE  
Bellevue, WA 98004

Subject: **SR-520 PONTOON DRYDOCK GATE  
SUMP CORROSION INSPECTION  
TECHNICAL MEMO**

Dear Mr. Schnetzer:

On March 11, 2015, Norton Corrosion Limited (NCL) personnel completed a follow-up inspection of the gate for the SR-520 pontoon drydock construction facility. This inspection was requested to examine coating failure along with aggressive corrosion within the gate sump.

### Findings

A visual inspection of the clips (which were coated during the previous float-out) shows substantial coating loss. Similar coating failures were also found on the gate in areas where the coating was previously repaired. The gate coating originally required a 7 day cure time prior to submersion. Since the gate was never out of service for more than a few days, cure time was never sufficient.

A review of the front submerged side of the gate indicated that although there was some coating loss, the anodes were functioning as designed. Anode wear was relatively minimal as anticipated.

Significant corrosion was found on the base of the dry side of the gate. This area (Image 1) sits in standing water. Since the sump is located on the dry side it cannot be protected by the aluminum anodes on the front. Previous testing indicated that the standing water in the sump had a resistivity of 180-ohm-centimeters, which is classified as "aggressive" with respect to corrosivity. The carbon steel in the sump is electrically continuous with the stainless steel clips and studs. Since the coating did not adhere properly to the clips, the corrosion cell between the two dissimilar metals was substantial, resulting in significant pitting (Image 2-3).

### Recommendations

To resolve the corrosion issues, the coating should be repaired per the manufacturer's recommendations for submerged use. Additionally, as a secondary method of preventing corrosion, galvanic ribbon anodes should be installed in the sump. The combination of coating repairs and cathodic protection will greatly reduce the corrosion rate.

HNTB

March 16, 2015

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### Anode Calculations

- The length of the Sump is approximately 110-feet long and 8-inches deep. The amount of submerged steel would be the depth of the gate x the length (110' x (8'/12")) giving a surface area of 73.3-feet<sup>2</sup>.
- For the purpose of this design, the coating quality will be 50%. This will account for a significant coating failure over the next several years.
- The CP system will only need to protect uncoated surfaces, or 50% of 73.3-feet<sup>2</sup> which is 37-feet<sup>2</sup>.
- Based on the NACE engineering handbook, consider using 7 milliamps (mA) per square foot of exposed metal. 7 mA x 37 = 259 mA will be required.
- Calculate the resistance of a 110 foot anode, laid in the sump from end to end.

Anode resistance - based on using zinc ribbon (+ Size) 0.875" x 0.625" x 110' feet long,

$$R = \frac{0.00521 \times \rho}{L} \left( \ln \frac{8 \times L}{D} - 1 \right)$$

R = anode to water resistance

ρ = water resistivity (180 ohm-cm)

D = calculated diameter of anode in feet (0.83" = 0.07')

L = anode length (110')

0.00521 = Unit conversion factor

$$R = \frac{0.00521 \times 180}{110'} \left( \ln \frac{8 \times 110'}{0.07} - 1 \right)$$

$$R = 0.072 \text{ ohms}$$

- Driving voltage of zinc to steel

$$V = 1.1 \text{ volts} - 0.70 \text{ volts} = 0.40 \text{ volts}$$

- Current output

$$I = \frac{V}{R} = \frac{0.40}{0.072} = 5.6 \text{ amps}$$

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March 16, 2015  
Page 3

- Anode Life

$$\text{Life} = \frac{132 \text{ lbs} \times 90\% \times 85\%}{23.75 \text{ lbs/amp} - \text{year} \times 0.259 \text{ amps}} = 16 \text{ years}$$


Therefore, a segment of zinc ribbon laid inside of the trench from end to end will provide sufficient protection and satisfy the 12 year design life. For ease of installation and removal, the anode will be cut into two 55-foot sections and connected at each end. This will make removal and installation easier.

A proposed drawing of this installation has been provided along with a cut sheet of the anode ribbon.

Anode/wire connections - ROM estimate = \$1,000.

NCL appreciates the opportunity to be of service to HNTB. If you have any questions or additional concerns, please contact our office.

Sincerely,

  
Matt Slosson  
NACE CP Specialist #7783

Eric Shadle, P.E.  
Manager of Engineering

P:\Documents\ENGINEERING\20123\_HNTB\_520\_DD\_Gate\_Sump\_Tech\_Memo\_R1



3/16/2015

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March 16, 2015  
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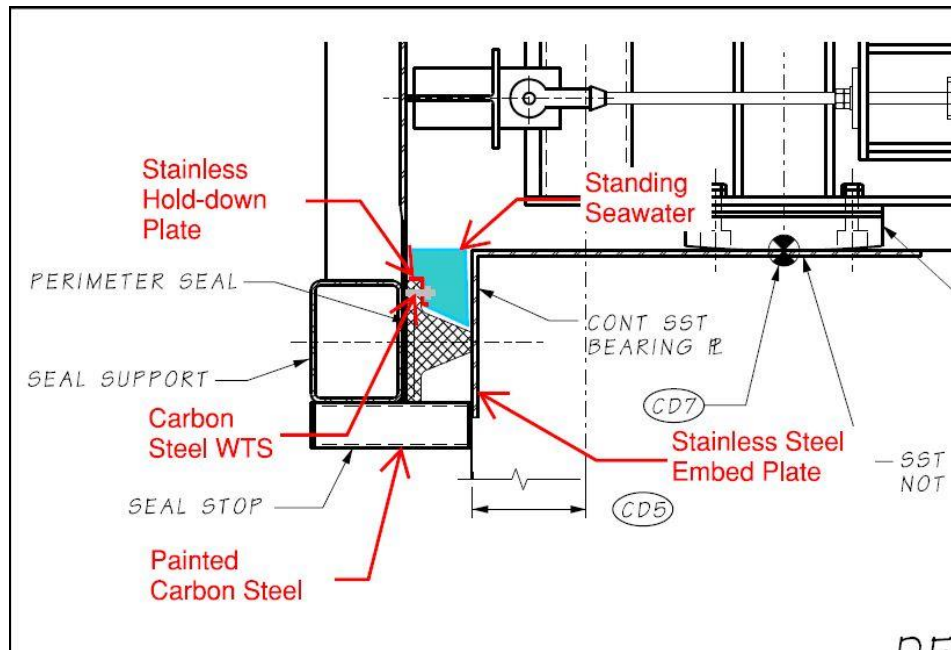


Image 1: Water filled sump between the gate and the concrete. A stainless steel clip is used to secure the seal to the carbon steel gate. Coating failure, combined with dissimilar metals, resulted in aggressive corrosion in a relatively short period of time.



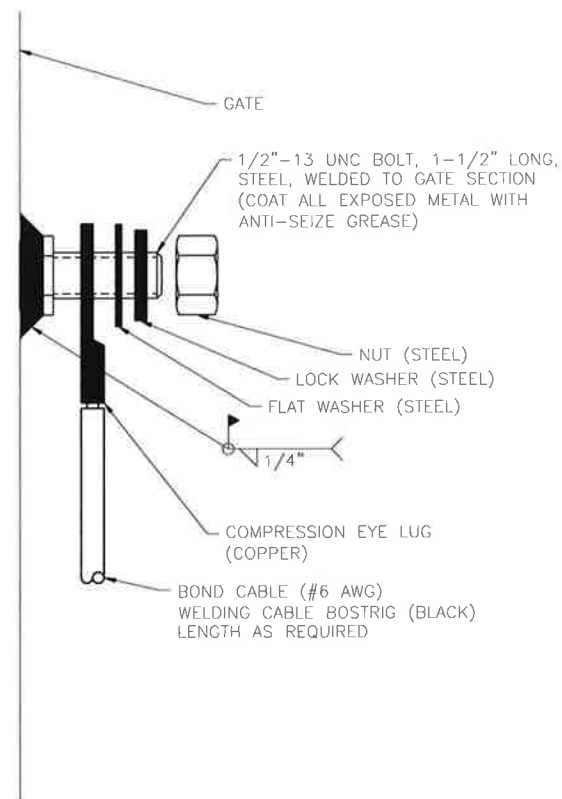
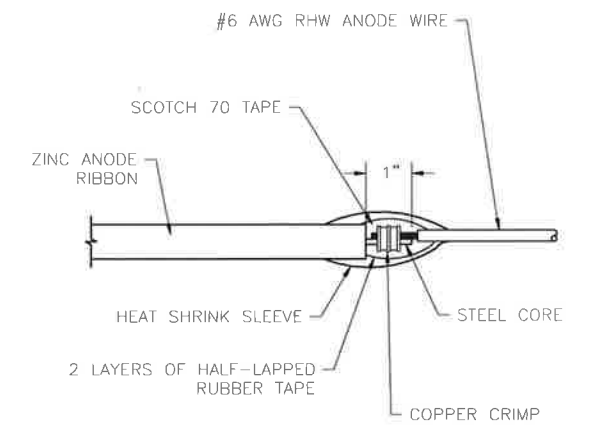
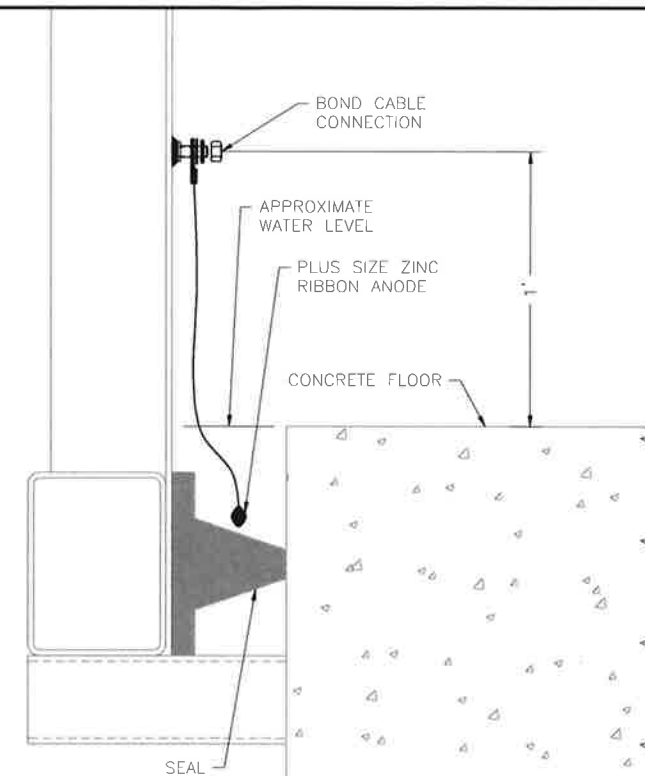
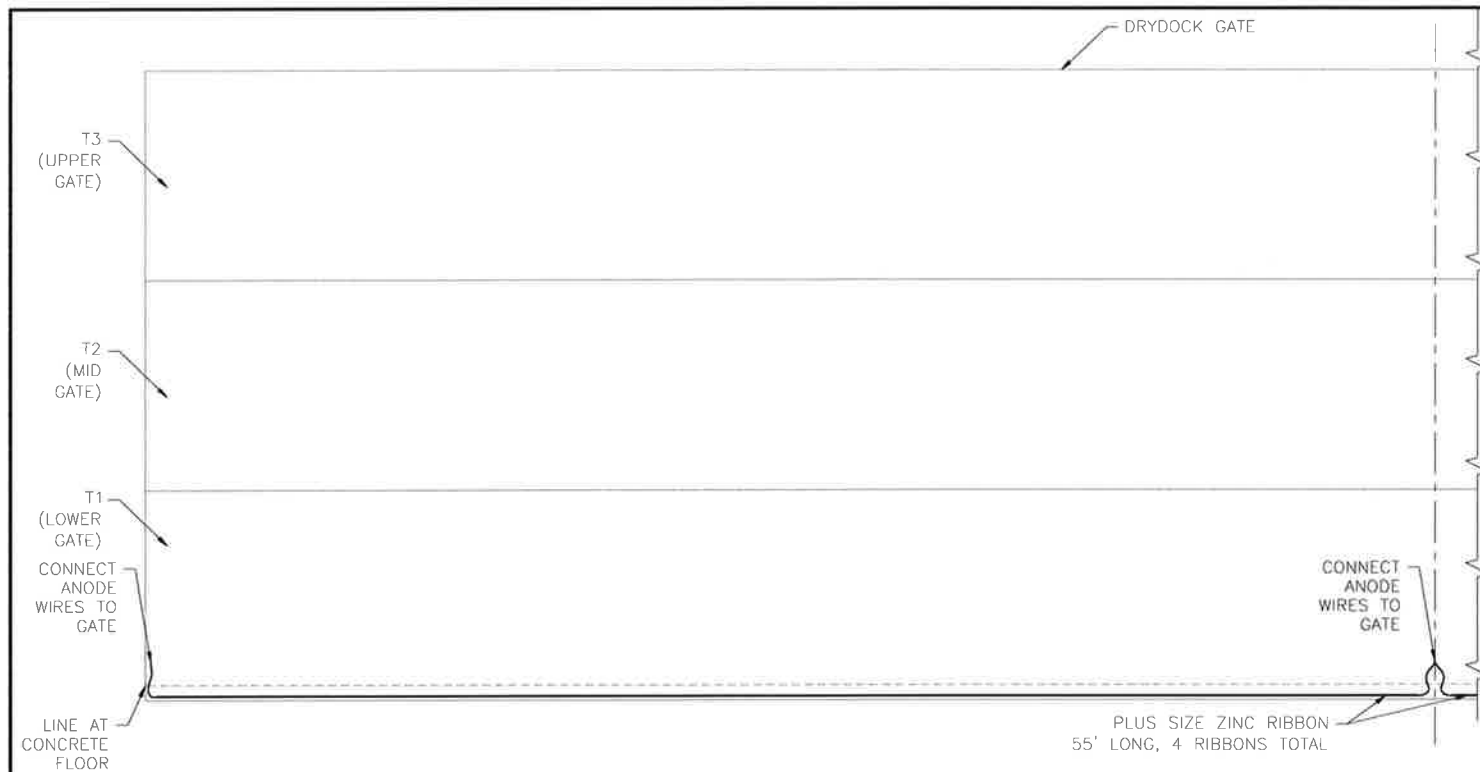
Image 2: Most of the corrosion occurred adjacent to the stainless steel clip.

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Image 3: Corrosion on the bottom right corner of the gate. At this location there is another stainless steel clip running vertically. There is more stainless steel at this location, which explains why the penetration occurred here.

# PROPOSED INSTALLATION DRAWING 1 of 1



12MAR15 13AUG14	REVISED PER CUSTOMER COMMENTS REVISED PER CUSTOMER COMMENTS	M.S. M.S.					 <b>Norton Corrosion Limited</b> Woodinville, WA. <b>(800) 426-3111</b> <a href="http://www.nortoncorrosion.com">www.nortoncorrosion.com</a>	 HNTB 520 DRYDOCK GATE SUMP ANODE INSTALLATION	Drawing #: Designed By: Drawn By: Approved By: Date Drawn: Revision #: Drawing Scale:	D-20123-02 M.S. R. Hunt E.S. 01AUG2014 2 None
Date	Revision	Approved	Date	Revision	Approved					

## RIBBON ANODE CUT SHEET 1 of 1

# Extruded Zinc Anodes

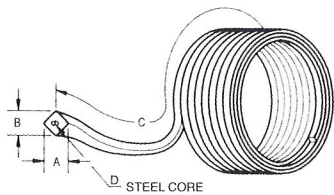
## Chemical Composition (%)

	Al	Cd	Fe (max)	Pb (max)	Cu (max)	Zn
Type I	0.1-0.5	0.02-0.07	0.005	0.006	0.005	Balance
Type II	0.005 max	0.003 max	0.0014	0.003	0.002	Balance
High Purity	0.003 max	0.002 max	0.001	0.003	0.001	99.995 min

## Electrochemical Properties

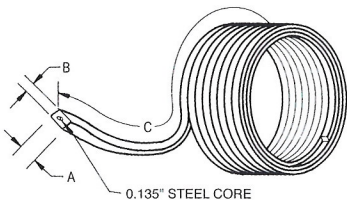
	Open-Circuit Voltage (-V respect to Cu/CuSO <sub>4</sub> )	Closed-Circuit Voltage (-V respect to Cu/CuSO <sub>4</sub> )	Actual Capacity (A·h/lb)	Current Efficiency (%)
Type I	> 1.05	> 1.00	353	95
Type II	> 1.10	> 1.05	335	90
High Purity	> 1.10	> 1.05	335	90

### RIBBON (DIAMOND SHAPE)



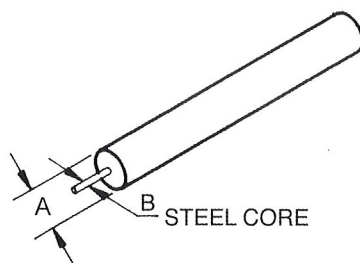
Type	Dimensions				Weight (lb/ft)
	A (in.)	B (in.)	C (ft/coil)	D (in.)	
Super	1	1-1/4	100	0.185	2.4
Plus	5/8	7/8	200	0.135	1.2
Standard	1/2	9/16	500,1000,3600	0.130	0.6
Small	11/32	15/32	1000	0.115	0.25

### RIBBON (RECTANGULAR SHAPE)



Dimensions			Weight (lb/ft)
A (in.)	B (in.)	C (ft/coil)	
3/4	3/8	1,000	0.83

### ROD



Dimensions (in.)		Weight (lb/ft)
A	B	
0.550	0.079	0.74
0.750	0.135	1.37
0.840	0.135	1.72
1.050	0.135	2.68
1.315	0.135	4.20
1.561	0.188	5.92
2.024	0.188	9.95

# RFI HNTB 337 - Cycle 6 Gate Repairs

*Attachments of RFI on Centric*

## RFI HNTB 337

May 13, 2015

**Subject:** Cycle 6 Float Out Gate Repairs  
**Project:** SR 520 Pontoon Construction  
**Submitted:** April 7, 2015 4:46 pm  
**Status:** Completed  
**Description:** .

## RFI HNTB 337

May 13, 2015

### User Fields

<b>Reason for RFI</b>	<p>1) Additional corrosion was found on the dry side of the gate in the sump at the basin floor intersection. Norton Corrosion recommends recoating the SS clips and adding a zinc extruded anode in the sump. Is the solution from Norton in the linked Casting Basin Design Review Submittal 80 acceptable?</p> <p>2) Weld repairs were necessary on the barrier wall of T1 this cycle due to corrosion. Any divot was filled with E7018, and those deeper than 1/8" had a 1/2" backer plate welded to the front side that extended 1" past the weld area. Repairs were performed by certified welders as witnessed by a CWI who also performed magnetic particle testing instead of UT. UT testing was deemed not practical. Linked are photos and CWI report. Are the repairs made in the linked Weld Repairs document acceptable?</p> <p>3) During the re-installation of the vertical perimeter seal on T1 at GL1, one SS stud sheared and another cracked. KG removed the studs and under the supervision of a CWI using a certified welder, replaced both studs. The welder was not certified for stainless, but the CWI approved him to perform the weld as allowed per D1.6. Sherwin Williams approved the use of Fast Clad ER to touch up the coated areas damaged by welding. Linked are pictures of the repairs, CWI field report, and the signed letter from Sherwin Williams. Are the repairs made to the studs acceptable?</p> <p>4) The cure to service duration was not clear based on the information provided in the product data sheet of Duraplate 235. Sherwin Williams clarified in the linked letter that a 5 day cure based on thickness, temperature and humidity is acceptable. They also clarified that after 4 days the perimeter seals could be re-installed. Is the data provided by Sherwin Williams acceptable to follow?</p>
<b>Drawing No.</b>	WSDOT 9-06 - Structural Steel & Related Material
<b>Spec Section</b>	A2- Casting Facility Construction
<b>Major Area</b>	S2 - Casting Basin
<b>Specific Area</b>	T7-Structural Steel
<b>Type of Work</b>	1000
<b>Cost Impact</b>	Yes
<b>Reviewed by Construction Manager?</b>	
<b>HNTB Response</b>	<p>1. As documented in Submittal 80, the Norton recommendations are acceptable.</p> <p>2. The pictures included with the RFI appear to be in accordance with the KPFF provided email direction, and in accordance with the repairs documented in the Cycle 6 gate field report. It also appears that a few other locations requiring repair were found after sandblasting, and repaired in accordance with the KPFF recommendations. Magnetic Particle Testing is acceptable in lieu of UT testing.</p> <p>3. The RFI does not note the stud preparation. Per the original recommendations, the existing stud and weld should be prepared, and a new stud should be welded per plan. Based on the coating manufacturers recommendations, the Fast Clad ER system is acceptable for paint touch up at the seal stud repairs. The original KPFF recommendations required the welder to be certified to perform stainless steel welding. As noted in the RFI, the inspector approved the welder to perform the welds per AWS D1.6 and all welds were determined to be acceptable. Assuming proper preparation, with successful stud and coating repair, this solution is structurally acceptable.</p> <p>4. Based on the coating manufacturers recommendations and assuming proper curing conditions and duration, the Sherwin Williams recommendations are acceptable.</p>
<b>Design Calculations Required?</b>	No
<b>Accepted by Design Team?</b>	Yes